



THE
Arte of Warre,

Written in Italian by *Nicholas Machiavel*, and set forth in English by *Peter Withorne*, student at Graies Inn with other like Martiall feates and experiments, as in a Table in the ende of the booke may appeare. Newly imprinted with other additions.

1588.

To the most high, and excellent
 Princes, Elizabeth, by the grace of God Queene of Eng-
land, Fraunce, and Ireland, defender of the Faith, and
 of the Church of England, and Ireland, on
 Earth next vnder God, the su-
 preme Gouvernour.



Although commonly euery man,
 most worthy and renemmed So-
 ueraigne, seeketh specially to
 commende and extoll the thing,
 wherunto he seeleth himselfe na-
 turally bent & inclined, yet alsuch
 parcialitie and priuate affection
 laid aside, it is to be thought (that
 for the defence, maintenance, and
 aduancement of a Kingdome, or Common weale, or
 for the good and due obseruation of peace, and admi-
 nistracion of iustice in the same) no one thing to be more
 profitable, necessarie, or more honourable, then the know-
 ledge of seruice in warre, and deedes of armes, because
 considering the ambition of the world, it is impossible
 for any Realme or Dominion long to continue free in
 quietnes and safegard, where the defence of the sword
 is not alwaies in a readinesse. For like as the Grekes,
 being occupied about trifling matters, taking pleasure
 in resiting of Comedies, and such other vaine things,
 altogether neglecting Partiall feats, gave occasion to
 Philip king of Macedonia, father to Alexander the
 great, to oppresse and to bring them in seruitude, vnder
 his subiection: euen so vndoubtedly, libertie will not be
 kept, but men shall be troden vnder foote, and brought
 to most horrible miserie and calamitie, if they giuing
 themselues to pastimes and pleasure, forsake the iust re-
 gard of their owne defence, & safegard of their countrie,
 which in temporall regiment, chiefly consisteth in war-
 like skilfulness. And therefore the auncient Captaines

The Epistle.

and mightie Conquerours, so long as they flourished, did deuise with most great diligence, all maner of wayes, to bring their men to the perfect knowledge of what so euer thing appertained to the warre, as manifestly appeareth by the warlike games, which in olde time the Princes of Grecia ordained vpon the mount Olympus, and also by the orders and exercises, that the auncient Romanes vsed in sundrie places, and specially in Campo Martio, and in their wonderfull sumptuous Theaters, which chiefly they builded to that purpose. Wherby they not onely made their souldiours so expert, that they obtained with a few, in fighting against a great huge multitude of enemies, such maruailous victories, as in many credible histories are mentioned, but also by the same meanes, their vnarmed rascall people that followed their Campes, got such vnderstanding in the secrets of warre, that they in the day of battail, being left destitute of succour, were able without any other helpe to set themselves in good order, for their defence against the enemy, that would seek to hurt them, and in such dangerous times, haue done their countrie so good seruice, that verie often by their helpe, the aduersaries haue bene put to flight, and fieldes most happily wonne. So that the antiquitie esteemed nothing more happy in a common weale, then to haue in the same many men skilfull in warlike affaires: by meanes whereof their Empire continually enlarged, & most wonderfully and triumphantly prospered. For so long as men for their valiauntnes, were then rewarded and had in estimation, glad was he that could finde occasion to venture, yea and spend his life to benefite his countrie: as by the manly actes that Marcus Curtius, Oratius Cocus, & Gaius Mucius did for the sauegard of Rome, & also by other innumerable like examples, both plainly appeare. But when through long & continual peace, they began to be altogether giuen to pleasure and delicatenes, little re-
gardin

Dedicatorie.

garding Partiall seats, nor such as were expert in the practise thereof. Their dominion and estates, did not so much before increase and prosper, as the by such meanes and oversight, they sodainly fell into decay & vtter ruine. For such truly is the nature & condicion, both of peace and warre, that where in gouernment there is not had equall consideration of them both, the one in fine doth worke and induce the others obliuion, and vtter abholicion. Wherefore, sith the necessitie of the science of warres is so great, and also the necessarie vse thereof so manifest, y euen Ladie Peace hir selfe, doth in manner from thence craue hir chiefe defence & preservation, and the worthinesse moreover, [and honour of the same so great, that as by prowe we see, the perfect glozie thereof, cannot easile finde roote, but in the hearts of most noble, couragious & manlike personages. I thought most excellent Princes, I could not either to the special gratesping of your highnes, the vniuersall delight of all studious gentlemen, or the common vtilitie of the publique wealth, employ my laboures more profitable in accomplishing of my dutie and good will, then in setting forth some thing, that might induce to the augmenting and increase of the knowledge thereof: in especially the example of your highnesse most politike gouernment ouer vs, giuing plaine testimonie of the wonderfull prudent desire that is in you, to haue your people instructed in this kind of seruice, as well for the better defence of your Highnes, them selues, and their countrie, as also to discourage thereby, and to be able to resist the malignitie of the enemy, who otherwise would seeke peraduenture to inuade this noble realme or kingdome.

When therefore about ten yeares past, in the Emperours warres against the Moors, & certaine Turkes being in Barberie: at the siege and winning of Calibbia, Ponesterto, and Affrica, I had as well for my further instruction in those affaires, as also the better to

The Epistle.

acquaint mee with the Italian tongue, reduced into English, the booke called The arte of Warre, of the famous and excellent Nicholas Machiauel, which in times past he being a counsaillour, and Secretarie of the noble citie of Florence, not without his great laud and praise did write: and hauing lately againe, somewhat perused the same, the which in such continuall broyles, and vnquietnes, was by mee translated, I determined with my selfe, by publishing therof, to bestow as great a gift (since greater I was not able) amongst my countrie men, not expert in the Italian togue, as in like works I had seene before mee, the Frenchmen, Dutchmen, Spaniardes, and other forreine nations, most louingly to haue bestowed among theirs: The rather vndoubtedly, that as by priuate reading of the same booke, I then felt my selfe in that knowledge maruailously holpe & increased, so by communicating the same to many, our Englishmen finding out the ordering and disposing of exploitcs of warre therein contained, the aide and direction of these plaine and brieue precepts, might no lesse in knowledge of warres become incomparable, then in proucs also and exercise of the same altogether inuincible: which my translation most gracious Soueraigne, together with such other thinges, as by me hath bene gathered, & thought good to adde thereunto, I haue presumed to dedicate vnto your highnes: not onely because the whole charge and furniture of warlike counsailes and preparations, being determined by the arbitrement of Couernours and Princes, the treatise also of like effect should in like maner as of right depend, vpon the protection of a most worthy and noble Patronesse, but also that the discourse it selfe, and the worke of a foraine author, vnder the passport and saferconduite of your highnes most noble nanie, might by speciall authoritie of the same, winne amongst your Maiesties subiectes, much better credite and estimation. And if most mighty

Quene

Dedicatorie.

Quene, in this kinde of Philosophie (if I may so terme it) graue and sage counsailes, learned & wittie precepts, or polittike and prudent admonitions, ought not to be accounted the least and basest ietwells of weale publike. When dare I boldly affirme, that of many straungers, which from foraine countries, haue heretofore in this your Maiesties realme arriued, there is none in comparison to be preferred, before this worthy Florentine & Italian, who hauing freely without any gaine of exchange (as after some acquaintance and familiaritie will better appeare) brought with him most rich, rare and plentifull Treasure, shall deserue I trust of all good English hearts, most louingly and freindly to be entertained, embraced and cherished. Whose new English apparel, how so euer it shall seeme by mee, after a grosse fashion, more fitly appointed to the Campe, then in nice termes atired to the Carpet, and in course clothing rather put forth to battaile, then in any braue shew prepared to the banquet, neuerthelesse my good will I trust, shall of your grace be taken in good part, hauing fashioned the praise of my rude stile, euen according to the purpose of my traile, which was rather to profite the desirous man of warre, then to delight the cares of the fine Rethorician, or daintie curious scholeman. Most humbly beseeching your highnes, so to accept my labour herein, as the first frutes of a poore souldiours studie, who to the vttermost of his final power, in the service of your most gracious maiestie, and of his countrie, will at all times, according to his boundent duetie and alleageaunce, promptly yeeld himselfe to any labour, trauaile, or danger, what so euer shall happē. Praying in the meane season the almightie God, to giue your highnes in long prosperous raigne, perfect health, desired tranquillitie, and against all your enemies, lucky and ioyfull victorie.

Your humble subiect and dayly
orator, *Peter Whitehorne.*

EXHIBIT

Exhibit A. Report of the Committee on the
State of the Union, 1901.

The Proheme of Nicholas Machiavel, Citezen and Secretary of Florence,
*upon his booke of the Arte of Warre, unto Laurence Philippe Strozze, one of
the Nobilitie of
Florence.*

There haue Laurence, many held, and doe hold this opinion, that there is no maner of thing, which lesse agreeth the one with the other, no: that is so much unlike, as the ciuill life, to y^e Soule diours. Wherby it is often seene, that if any determin in the exercise of that kinde of seruice to preuaile, that incontinent he doth not onely chaunge in apparell, but also in custome and maner, in voyce, and from the fashion of all ciuill vse, he doth alter: For that he thinketh not meete to cloth with ciuill apparell, him who will be redy, and prompt to all kinde of violence, no: the ciuil customes, and vsages may that man haue, the which indgeth both those customes to be effeminate, and those vsages not be agreeable to his profession: Nor it seemes not conuenient for him to vse the ciuil gesture and ordinarie wordes, who with facing and blasphemies, will make afraied other men: the which causeth in this time, such opinion to be most true. But if they should consider the auncient orders, there should nothing be found more vnitied, more confirmable, and that of necessitie ought to loue so much the one the other, as these: for as much as all the artes that are ordeyned in a common weale, in regard or respect of common profite of men, all the orders made in the same, to liue with feare of the Lawe, and of God, should bee vaine, if by force of

The Probeme.

armes their defence were not prepared, which well or
deigned, doe maintaine those also which be not well or
deigned. And likewise to the contrarie, the good orders,
without the Souldiours helpe, no lesse or otherwise
do disorder, then the habitation of a sumptuous & royall
palais, although it were deckt with golde and precious
stones, when without being conered, should not haue
wherewith to defend it from the raine. And if in what
so euer other orders of cities and kingdomes there hath
beene vsed all diligence for to maintaine men faithfull,
peaceable, and full of the feare of God, in the seruice of
warre, it was doubled: for in what man ought the coun-
trie to seeke greater faith, then in him, who must pro-
mise to die for the same? In whom ought ther to be more
loue of peace, then in him, which onely by the warre
may be hurt? In whome ought there to be more feare of
God, then in him, which euerie day committing him selfe
to infinite perills, hath most neede of his helpe? This
necessitie considered well, both of them that gaue the
lawes to Empires, and of those that to the exercise of
seruise were appointed, made that the life of Souldiours,
of other men was praised, and with all studie followed
and imitated. But the orders of seruise of warre, beeing
altogether corrupted, and a great way from the aun-
cient maners altered, there hath growne these siniste-
rous opinions, which maketh men to hate the warlike
seruise, and to flie the conuersation of those that do exer-
cise it. Albeit I iudging by the same, that I haue seene
& read, that it is not a thing impossible, to bring it againe
to the aunient maners, and to giue it some fashion of
the vertue passed, I haue determined to the intent not
to passe this my idle time, without doing some thing, to
write that which I do vnderstand, of the arte of warre,
to the satisfiying of those, who are louers of aunient
actes. And although it be a bolde thing to intreat of the
same matter, whercof otherwise I haue made no profes-
sion

The Probeme.

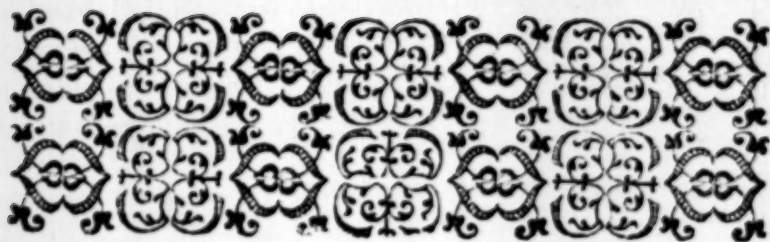
2

sion, notwithstanding I beleeue it is no error to occupie with wordes a degree, the which many with greater presumption with their deedes haue occupied: for as much as the errors that I may happen to make by writing, may be without harme to any man corrected: but those the which of them be made in doing, can not be knownen without the ruine of Enpirers. Therefore Laurence you ought to consider the qualitie of this my labour, and with your iudgement to giue it that blame, or that praise, as shall seeme vnto you it hath deserved. The which I send vnto you, as well to shew my selfe gratefull, although my abilitie reche not to the benefites, which I haue receiued of you, as also for that being the custome to honour with like workes them,

who for nobilitie, riches, wisdome, and liberality, do shine: I know you for riches and nobilitie, not to haue many peeres, for wisdome few, and for liberality, none.

FINIS.

A.ii.



The first booke of the arte of Warre,

of Nicholas Machiauel , Citezen and Secretarie
of Florence, vnto Laurence Philip Strozze,
one of the Nobilitie of
Florence,



As much as I beleue that after death, all menne may be praised without charge, all occasions and suspect of flattery being taken away, I shall not doubt to praise our Cosimo Ruchellay, whose name was neuer remembred of mee without teares, hauing knowen in him those condicions, the which in a good friend or in a Citezen, might of his friends, or of his countrie, be desired: for that I do not know what thing was so much his, not so excepting any thing (sauing his soule) which for his friends willingly of him should not haue bene spent: I know not what enterprise should haue made him afraied, where the same should haue bene knowen to haue bene for the benefit of his country. And I do plainly confesse, not to haue met amongst so many men, as I haue knowen, and practised withall, a man, whose minde was more inflamed then his, vnto great and magnificent thinges. For he lamented not with his friendes of any thing at his death, but because he was borne to die a young man within his owne house, before hee had gotten honour, and according to his desire, holpen any man: for that he knew, that of him could not bee spoken no other, sauing that there should be dead a good friend. Yet it resteth not for this, that wee, and what soeuer other that as we did know him, are not able to testifie (seeing his workes do not appere) of his laudable qualities. True
it

The first Booke of

it is, that fortune was not for all this, so much his enemy, that it left not some briefe recorde of the readynesse of his wit, as doth declare certayne of his writings, and setting forth of amorous verses, wherein (although hee were not in loue) yet for that hee would not consume tyme in vayne, till vnto profounder studies fortune should haue brought him, in his youthfull age hee exercised himselfe. Whereby most plainly may hee comprehended, with how much felicity hee did describe his conceiptes, and how much for Poetrie hee should haue bene esteemed, if the same for the ende thereof, had of him bene exercised. Fortune hauing therefore deprived vs from the vse of so great a friend, mee thinketh there can be found no other remedy, then as much as is possible, to seeke to enioy the memory of the same, and to repeate such thinges as hath bene of him either wittely said, or wisely disputed. And for as much as there is nothing of him more freshe, then the reasoning, the which in his last daies Seignior Fabritio Collonna, in his Orchard had with him, where largely of the same gentleman were disputed matters of warre, both wittely and prudently, for the most parte of Cosimo demaunded, I thought good for that I was present there with certayne other of our friendes, to bring it to memory, so that reading the same the friends of Cosimo, which thither came, might renew in their myndes, the remembraunce of his vertue: and the other part being sorry for their absence, might partly learne hereby many thinges profitable, not onely to the lyfe of Souldiours, but also to ciuill mens lyues, which grauely of a most wise man was disputed. Therefore I say, that Fabritio Collonna retourning out of Lomberdie, where long tyme greatly to his glory, he had serued in the warres the Catholique King, he determined, passing by Florence, to rest him selfe certayne dayes in the same citie, to visit:

visite the Dukes excellencie, and to see certaine gentlemen, which in times past hee had bene acquainted withall. For which cause vnto Cosimo it was thought best to bid him into his Orchard, not so much to vse his liberality, as to haue occasion to talke with him at leisure, and of him to vnderstand and to learne diuers things, according as of such a man may be hoped for, seeing to haue occasion to spend a day in reasoning of such matters, which to his mind should best satisfy him. Then Fabritio came, according to his desire, and was receiued of Cosimo, together with certaine of his trusty friendes, amongst whom were Zanoby Buondelmonti, Baptiste Palla, and Luigi Allamanni, all young men loued of him, and of the very same studies most ardent, whose good qualities, for as much as euery day, and at euery heure they do praise themselves, we will omit. Fabritio was then according to the time and place honoured, of all these honours, that they could possible desire: But the banquetting pleasures being passed, and the table taken vp, and al preparation of feasting consumed, the which are some at an end in sight of great men, who to honorable studies haue their mindes set, the day being long, and the heat much, Cosimo iudged for to content better his desire, that it were well done, taking occasion to auoyd the heate, to bring him into the most secrete and shadowest place of his garden.

Where they being come, and caused to sit, some vpon herbes, some in the coldest places, other vpon little seats which there was ordained, vnder the shadow of most high trees, Fabritio praiseth the place, to be delectable, and particularly considering the trees, and not knowing some of them he did stand musing in his mind, where of Cosimo being aware, said, you haue not peradventure bene acquainted with some of these sortes of trees: But do not maruaile at it, for as much as there be some, that were more esteemed of the antiquitie, then they

How Senior
Fabritio Col-
onna & other
gentlemen be-
ing together
in a garden,
entered into
talke of mat-
ters of warre.

The first Booke of

they are commonly now a dunces : and he tolde him the names of them , and howe Barnardo his graundfather did trauaile in such kinde of planting: Fabritio replied, I thought it should be the same you saye, and this place, and this study , made me to remember certaine Princes of the Kingdome of Naples, which of these auncient tillage and shadow doe delight . And staying vpon this talke , and somewhat standing in a studie , said moreover , if I thought I should not offende , I would tell my opinion , but I beleue I shall not , communing with friends, and to dispute of thinges , and not to condempne them . How much better they should haue done (be it spoken without displeasure to any man) to haue sought to be like the antiquitie in thinges strong , and sharpe, not in the delicate and soft: and in those that they did in the Sunne, not in the shadowe : and to take the true and perfect maners of the antiquitie: not those that are false and corrupted: for that when these studies pleased my Romaynes, my countrey fell into ruine . Unto which Cosimo answered. But to auoide the tediousnesse to repeat so many times he saide , and the other answered, there shalbe onely noted the names of those that speakes, without rehearsing other.

Then Cosimo saide , you haue opened the way of a reasoning , which I haue desired, and I praye you that you will speake without respect, for that, that I without respect will aske you , and if I demaunding, or replying shall excuse, or accuse any , it shall not be to excuse , or accuse, but to vnderstand of you the trueth.

Fabritio . And I shall be very well contented to tell you that , which I vnderstand of all the same that you shall aske me, the which if it shall be true, or no , I will reposte me to your iudgement : and I will be glad that you aske mee, for that I am to learne, as well of you in asking mee , as you of mee in answering you: for as much as many times, a wise demander , maketh

the Art of Warre.

3

keeth one to consider many things, and to know many other, which without hauing bene demaunded, he should neuer haue knowen. Cosimo. I wil retourne to the same that you said first, that my graundfather and those your Princes, should haue done more wisely, to haue resembled the antiquitie in hard things, then in the delicate, & I will excuse my part, for that, the other I shall leaue to excuse for you. I do not beleue that in this time was any man, that so much detested the liuing in ease, as he did, and that so much was a louer of the same hardnesse of life, which you praise: notwithstanding he knew not how to be able in person, nor in those of his sonnes to vse it, being bozne in so corrupte a worlde, where one that would digresse from the comunon vse, should bee infamed and disdayned of euery man: considering that if one in the hottest day of Summer being naked, should swallow himselfe vpon the Sand, or in Winter in the most coldest monethes vpon the Snowe, as Deogenes did, he should be taken as a fole. If one (as the Spartans were wont to do) should nourish his children in a village, making the to sleepe in the open ayre, to go with head and feete naked, to wash them selues in the colde water for to harden them, to be able to abide much payne, and for to make them to loue lesse life, & to feare lesse death, he should be scorned, and soner taken as a wilde beast, then as a man. If there were seene also one, to nourish himselfe with peason and beanes, and to despise gold, as Fabritio doth, he should be praised of few, and followed of none: so that he being afraied of this present maner of liuing, he left the auncient facions, and the same, that he could with least admiration imitate in the antiquitie, he did.

Fabritio. You haue excused it in this part most strongly, and surely you say the truth: but I dyd not speake so much of this hard maner of lyuing, as of other maners more humaine, and which haue with the

The first Booke of

life now a dayes greater conformance. The which I do not beleue y^t it hath bin difficult to bring to passe vnto one, who is numbred among Princes of a Citie: for the prouing wherof, I wil neuer seeke other, then the example of the Romanes: whose liues, if they were wel considered, & the orders of the same comon weale, there should therin be scene many things, not impossible to induce into a cominalty, so that it had in her any good thing. Cosi. What things are those that you would induce like vnto the antiquity. Fabr. To honor & to reward vertue, not to despise pouerty, to esteeme the manners and orders of warfare, to constrain the Citizens to loue one another, to liue without sectes, to esteeme lesse the priuate, then the publike, & other like things, that easily might be with this time accompanied: the which manners are not difficult to bring to passe, when a man should wel consider them, and enter therein by due meanes: for as much as in the same, the truth so much appeareth, that euery comon wit, may easily perceiue it: which thing, who that ordeineth, doth plant trees, vnder the shadow whereof they abide more happy, and more pleasantly, then vnder these shadowes of this godly garden. Cosimo. I will not speak any thing against the same that you haue said, but I wil leaue it to be iudged of those, whom easily can iudge, and I will turne my communication to you, that is an accusar of them, the which in graue, and great doings, are not folowers of the antiquity, thinking by this way more easily to be in my intent satisfied. Therefore, I would know of you wherof it groweth, that of the one side you condemne those that in their doings resemble not the antiquity: Of the other in the warre, which is your Arte, wherein you are iudged excellent, it is not scene that you haue indeuoured your selfe, to bring the same to any such ende, or any thing at all resembled therin the auncient maners. Fabricio. You are happened vpon the poynt, where I looked: for that my talke de-
serued

serued no other question : nor I desired other : and albeit that I could saue my selfe with an easie excuse, notwithstanding for my more contentation, and yours, seeing that the season beareth it, I will enter in much longer reasoning. Those men which will enterprise any thing, ought first with all diligence to prepare them selues to bee ready and apt when occasion serueth, to accomplish that, which they haue determined to worke: and for that when the preparations are made craftely, they are not knowen, there cannot be accused any man of any negligence, if first it bee not disclosed by the occasion: in the which working not, is after scene, either that there is not prepared so much as sufficeth, or that there hath not bene of any part thereof thought vpon. And for as much as to me there is not come any occasion to be able to shew the preparations made of mee, to reduce the seruice of warre into his auncient orders, if I haue not reduced it, I can not be of you, nor of other blamed: I beleue this excuse should suffice for answere to your accusation. Cosimo. It should suffice, when I were certaine, that the occasion were not come. Fabricio. But for that I know, that you may doubt whether this occasion hath bene come, or no, I wil largely (when you with patience will heare me) discourse what preparations are necessary first to make, what occasion must grow, what difficulty doth let, that the preparations helpe not, and why the occasion can not come, & how these things at ones, which seeme contrary ends, is most difficult & most easie to do. Cos. You cannot do both to me, & vnto these other, a thing more thankfull then this. And if to you it shall not be tedious to speake, vnto vs it shal neuer be grieuous to heare: but forasmuch as this reasoning ought to be long, I wil with your lycence take helpe of these my friends, & they and I pray you of one thing, that is, that you will not bee grieued, if some time with some question of impo-

The first Booke of

taunce we interrupt you . Fabritio . I am most wel contented, that you Cosimo with these other young men here, do aske me : for that I beleue, that youthfulnessse, will make you louers of warlike things, and more easie to beleue the same, that of me shalbe said. These other, by reason of hauing now their head white, and for hauing vpon their backes their blood congeled, part of the are wont to be enimmes of warre , part vncorrecable, as those, whome beleue, that times, and not the naughty maners, constrayne men to liue thus : so that safely aske you all of mee, and without respect : the which I desire , as well, for that it may be vnto me a little ease, as also for y I shall haue pleasure, not to leaue in your minde any doubt: I will begin at your words , where you saide vnto me, that in the warre, that is my arte, I had not induoured to bring it to any auncient ende : wherupon I say, as this being an art, wherby men of no manner of age can liue honestly, it can not be vlsed for an art , but of a common weale: or of a Kingdome : and the one and the other of these, when they be well ordeyned , will neuer consent to any their Cetezens , or Subiectes , to vse it for any arte , nor neuer any good man doth exercise it for his perticular arte : for as much as god he shall neuer be iudged , whome maketh an exercise thereof, where purposing alwaies to gaine thereby , it is requisite for him to be rauening, deceipt, full, violent , and to haue many qualities , the which of necessitie maketh him not good : nor those men cannot , which vse it for an arte, as well the great as the least , bee made otherwise : for that this Arte doeth not nourish them in peace . Wherefore they are constrained , either to thinke that there is no peace, or so much to preuaile in the time of warre , that in peace they may be able to keepe them selues : and neither of these two thoughtes happeneth in a good man : for that in minding to be able to find him selfe at all times

Why a good man ought neuer to vse the exercise of armes, as his Art.

times, do grow robberies, violence, slaughters, which such Souldiours make as well to the friends, as to the enemies: and in minding not to haue peace, there groweth deceipts, which the Capitaines vse to those, which hire them, to the entent the warre may continue, and yet though the peace come often, it happeneth that the Capitaynes being depriued of their stipendes, and of their licencious living, they erecte an ansigne of aduentures, and without any pitie they put to sacke a Province. Haue not you in memorie of your affaires, how that being many Souldiours in Italie without wages, because the warre was ended, they assembled together many companie, and went faring the towne, and sacking the countrie, without being able to make any remedy? Haue you not read, that the Carthagenes souldiours, the first warre being ended which they had with the Romaines, vnder Matho, and Spendio, two Capitaynes, rebelliouslie constituted of them, made more perillous warre to the Carthagenes, then the same which they had ended with the Romaines? In the time of our fathers, Fraunces Sforza, to the entent to be able to liue honourable in the time of peace, not onely beguiled the Millenars, whose souldiour he was, but he tooke from them their libertie and became their Prince. Like vnto him hath bene all the other Souldiers of Italie, which haue vled warfare, for their particular Arte, and albeit they haue not through their malignitie become Dukes of Milein, so much the more they deserved to be blamed: for that although they haue not gotten so much as he, they haue all (if their liues were seene) sought to bring the like things to passe. Sforza father of Fraunces, constrained Quene Ione, to cast her selfe into the armes of the King of Aragon, hauing in a sodaine forsaken her: and in the middell of her enemies, left her disarmed, onely to satisfie his ambition, either in faring her, or taking from her the kingdome. Braccio with the very
same

The first booke of

A prouerbe of
warre & peace

same industrie, sought to possesse the kingdome of Naples, and if he had not bene ouerthrowen and slaine at Aquila, hee had brought it to passe. Like disorders grow not of other, then of such men as hath bene, that vse the exercise of warfare, for their proper arte. Haue not you a Prouerbe, which fortifieth my reasons, which saith, that warre maketh Theenes, and peace hangeth them vp: For as much as those, which know not how to liue of other exercise, and in the same finding not any man to sustaine them, and hauing not so much power, to know how to reduce themselues together, to make an open rebellion, they are constrayned of necessitie to Robbe in the highe waies, and Justice is inforced to extinguish them. Cosimo. You haue made mee to esteeme this arte of warfare almost as nothing, and I haue supposed it the most excellentest, and most honorablest that hath bene vsed: so that if you declare mee it not better, I can not remaine satisfied: For that when it is the same, that you say, I know not, whereof groweth the glorie of Caesar, of Pompei, of Scipio, of Marcello, and of so many Romane Capitaines, which by fame are celebrated as Goddes. Fabritio I haue not yet made an ende of disputing all the same, that I purposed to propounde: which were two thinges, the one that a good manne coulde not vse this exercise for his Arte: the other, that a common weale or a kingdome well govern'd, did neuer permit, that their Subiectes, or Citizens should vse it for an Arte. About the first, I haue spoken as much as hath comen into my minde, there remaineth in mee to speake of the second, where I will come to answer this your laste question, and I saye that Pompei and Caesar, and almost all those Capitaines, which were at Rome, after the last Carthagenens warre, gotte fame as valiaunt men, not as good. and those which liued before them, got glorie as valiaunt and good men: the which growe, for that these took

toke not the exercise of warre for their Arte: and those which I named first, as their arte did vse it.

And so long as the common weale liued vnspotted, neuer any Noble Citezen would presume, by the meanes of such exercise, to auayle thereby in peace, breaking the lawes, spoyling the Prouinces, vsurping, and playing the Tyrant in the Countrey, and in euerie manner preuailling: nor any of how low degree so euer they were, would goe about to violate the Religion, confederating them selues with priuate men, not to feare the Senate, or to follow any Tyrannicall insolence, for to bee able to liue with Arte of warre in all times.

But those which were Capitaines, contented with triumphe, with desire did turne to their priuate life, and those which were members, would be more willing to lay away their weapons, then to take them, and euerie man turned to his science, whereby they got their liuing: nor there was neuer any, that would hope with pray, and with this Arte, to be able to finde themselves. Of this there may be made concerning Citezens, most euident coniecture, by the ensample of Regolo Attillio, who being Capitaine of the Romane armies in Affrica, and hauing as it were overcome the Carthagenens, he required of the Senate, licence to returne home, to keepe his possessions, & told them, that they were marde of his husbandmen. Whereby it is more cleare then the Sunne, that if the same man had vsed tye warre as his Arte, and by meanes thereof, had purposed to haue made it profitable vnto him, hauing in praise so many Prouinces, he would not haue asked licence, to returne to keepe his felcles: for as much as euerie day he might otherwise haue gotten much more, then the value of all those possessions: but because these good men, and such as vse not the warre for their art, will not take of the same any thing then labour, perills, and glozie, when they
are

The first Booke of

are sufficiently glorious , they desire to returne home and to live of their owne science . Concerning men of lowe degree, and common souldiers , to proue that they kept the very same order , it both appeare that euery one willingly absented them selues from such exercise, and when they serued not in warre , they would haue desired to serue , and when they did serue , they would haue desired leaue not to haue serued: which is well knowne thorow many insamples , and inspecially seeing how among the first priuileges , which the Romaine people gaue to their Citizens was, y they should not be cōstrayned against their willes, to serue in the warres. Therefore, Rome so long as it was well gouerned, while she was vntill the comming of Graccus, it had not any Souldiour that would take this exercise for an arte, and therefore it had few naughty, and those fewe were seuerely punished . Then a Citie well gouerned , ought to desire, that this study of warre , be vsed in time of peace for exercise, and in the time of warre , for necessitie and for glorie: and to suffer onely the common weale to vse it for an arte, as Rome did, and what soeuer Citizen, that hath in such exercise other ende , is not good, and what soeuer Citie is gouerned other wise , is not well ordeyned. Cosimo . I remayne contented enough and satisfied of the same, which hether to you haue told, & this conclusion pleaseth me verie well which you haue made , and asmuch as is looked for touching a common wealth, I beleue that it is true, but concerning Kings, I cannot tell now , for that I would beleue that a King would haue about him , whome particularlie should take such exercise for his arte. Fabritio . A Kingdome well ordered ought most of all to auoide the like kinde of men, so onely they, are the destruction of their king, and altogether ministers of tiranny , and alledge me not to the contrary any present kingdome , for that I would denie you all those to be kingdomes well ordered

red, because the kingdomes which haue good orders, giue not their absolute Empire vnto their king, sauing in the armies, for as much as in this place onely, a quicke deliberation is necessary, and for this cause a principall power ought to be made. In the other affaires, he ought not to do any thing without counsell, and those are to be feared, which counsell him, least he haue some about him which in time of peace desireth to haue warre, because they are not able without the same to liue, but in this, I wilbe a little more large: neither to seeke a kingdome altogether good, but like vnto those, which be now a dayes, where also of a king those ought to be feared, which take the warre for their arte, for that the strength of armies without any doubt are the sote men: so that if a king take not order in such wise, that his men in time of peace may be content to retourne home, and to liue of their owne trades, it will follow of necessitie, that he ruinate: for that there is not found more perillous men, then those, which make the warre as their arte: because in such case, a king is inforced either alwaies to make warre, or to pay them alwaies, or else to be in perill, that they take not from him his kingdome. To make warre alwaies, it is not possible: to pay them alwaies it cannot be: seeing y of necessitie, he runneth in peril to leese the state. The Romanes (as I haue saide) so long as they were wise and good, would neuer permit, that their Citizens should take this exercise for their arte, although they were able to nourish the therein alwaies, for y that alwaies they made war: but to auoid the same hurt, which this continuall exercise might do them, seeing the time did not vary, they chaunged the men, and from time to time tooke such order with their Legions, that in xv. yerres alwaies, they renewed them: and so they had their men in the floure of their age, that is from xvii. to xxxiii. yerres, in which time the legges, the handes, and the eyes aunf were the

The first Booke of

one the other, nor they tarried not till their strength should decaye, and their naughtinesse increase, as it did after in the corrupted times. For as much as Octavian first, and after Tiberius, minding more their owne proper power, then the publicke profit, began to vnarme the Romane people, to be able easily to commaunde them, and to keepe continually those same armies on the frontiers of the Empire: and because also they iudged those, not sufficient to keepe byddled the people and Romane Senate, they ordayned an armie called Pretoriano, which lay hard by the walles of Rome, and was as a rocke on y^e backe of the same Citie. And for asmuch as then they began freely to permit, that such men as were apointed in such exercises, should vse the seruice of warre for their arte, straight way the insolence of them grew, that they became fearefull vnto the Senate, hurtfull to the Emperour, whereby ensued such harme, that many were slaine through their insolencie: for that they gaue and tooke away the Empire, to whome they thought good. And some while it happened, that in one selfe time there were many Emperours, created of diuers armies: of which thinges proceeded first the deuision of the Empire, and at last the ruine of the same. Therfore kings ought, if they will liue safely, to haue their Souldiours made of men, who when it is time to make warre, willingly for his loue will go to the same, and when the peace commeth after, more willingly will returne home. Which alwaies wilbe, when they shalbe men that know how to liue of other arte then this: and so they ought to desire, peace being come, that their Prince do tourne to gouerne their people, the gentlemen to the tending of their possessions, and the common souldiours to their particular arte, and euerie one of these, to make warre to haue peace, and not to seeke to trouble the peace, to haue war. Cosimo. Truly this reasoning of yours. I thinke to bee well considered

sidered, notwithstanding being almost contrary to that, which till now I haue thought, my minde as yet doth not rest purged of all doubt, for as much as I see many Lordes and gentlemen, to fynde themselves in time of peace, thorough the studies of warre, as your matches be, who haue prouision of their Princes, and of the comminallty. I see also, almost all the gentlemen at armes remaine with their prouision. I see many souldiers lye in garison of cities and fortrellis, so that me thinkes, that there is place in time of peace, for euery one.

Fabritio. I do not beleue that you beleue this, that in time of peace euery man may haue place, because, put case that there could not be brought other reason, the small number, that all they make, which remaine in the places alledged of you, would answer you. What proportion haue the souldiours, which are requisite to be in the warre with those, which in the peace are occuppyed? For as much as the fortrellis, and the cities that be warded in the time of peace, in the warre are warded much more, vnto whom are ioyned the souldiers which keepe in the field, which are a great number, all which in the peace be put away. And concerning the garde of states, which are a small number, I hope Iuly, and you haue shewed to euery man, how much are to be feared those, who will not learne to exercise any other arte, then the warre, and you haue for their insolence, depriued them from your gard, and haue placed therein Swisers, as men borne and brought by vnder Lawes, and chosen of the comminallty, according to the true election: so that say no more, that in peace is place for euery man. Concerning men at armes, they all remaining in peace with their wages, maketh this resolution to seeme more difficult: notwithstanding who considereth well all, shall finde the answer easy, because this manner of keeping men of armes, is a corrupted manner and not good, the occasion is, for that

C.ii.

they

The first Booke of

they be men , who make thereof an Arte , and of them there should grow euerie day a thousand inconueniences in the states , where they should bee , if they were accompanied of sufficient company:but being few , and not able by themselves to make an armie , they cannot often do such greivous hurtcs , neuertheless they haue done oftentimes : as I haue saide of Fraunces , and of Sforza his father, and of Braccio of Perugia:so that this vse of keeping men of armes, I do not allow , for it is a corrupt maner, and it may make great inconueniences. Cosimo . Would you liue without them : or keeping them , how would you keepe them? Fabritio. By waye of ordinaunce , not like to those of the king of Fraunce: for as much as they be perillous, and insolent like vnto ours, but I would keepe them like vnto those of the ancient Romanes , whome created the chualrye of their owne subiectes, and in peace time, they sent them home vnto their houses, to liue of their owne trades, as more largely before this reasoning ende, I shall dispute . So that if now this part of an armie , can liue in such exercise, as well whē it is peace, it groweth of the corrupt order. Concerning the prouisions, which are reserued to me, & to other capitaines, I say vnto you, that this likewise is an order most corrupted: for as much as a wise common weale, ought not to giue such stipends to any, but rather they ought to vse for Capitaines in the war, their Citizens, and in time of peace to will , that they returne to their occupations. Likewise also, a wise king either ought not to giue to such, or giuing any, the occasion ought to be either for reward of some worthy dede, or else for the desire to keepe such a kinde of man , as well in peace as in warre . And because you alledged mee, I will make ensample vpon my selfe, and say that I neuer vsed the warre as an arte, for as much as my art, is to gouerne my subiects , & to defend them, and to bee able to defend them, to loue peace, and to know how to
make

make warre, and my king not so much to reward and esteeme me, for my knowledge in the warre, as for the knowledge that I haue to counsel him in peace. When a King ought not to desire to haue about him, any that is not of this condition if hee bee wise, and prudently minde to gouerne: for that, that if he shall haue aboute him either to much louers of peace, or to much louers of warre, they shall make him to erre, I can not in this my first reasoning, and according to my purpose saye more, and when this sufficeth you not, it is meete, you seeke of them that may satisfie you better. You may now very well vnderstand, how difficulte it is to bring in bre the auncient maners in the present warres, & what preparations are meete for a wise man to make, & what occasions ought to be looked for, to be able to execute it. But by and by, you shall knowe these thinges better, if this reasoning make you not wæry, conferring what so euer partes of the auncient orders hath bene, to the maners now present. Cosimo. If we desired at the first to heare your reason of these thinges, truelie the same which hetherto you haue spoken, hath doubled our desire: wherefore wee thanke you for that wee haue heard, & the rest, we craue of you to hear. Fab, Saying that it is so your pleasure, I will begin to intreat of this matter from the beginning, to the intent it may bee better vnderstood, being able by the same meane, more largely to declare it. The ende of him that will make warre, is to be able to fight with euery enemy in the field, & to be able to ouercome an armie. To purpose to do this, it is conuenient to ordeyne an host. To ordeyne an host, there must be sound men, armed, ordered, & as well in the small, as in the great orders exercised, to knowe how to keepe aray, and to incampe, so that after bringing them vnto the enemy, either standing or marching, they may know how to behaue them selues valiantly. In this thing consisteth all the industrie of the

A King y hath about him any y are to much louers of war, or to much louers of peace, shal cause him to erre.

The first Booke of

warre on the lande, which is the most necessary, and the most honorablest, for he that can well order a field against the enemy, the other faultes y^e he should make in the affairs of warre, wilbe bayne with, but he that lacketh this knowledge, although that in other particulars he be very good: he shal neuer bring a warre to honour: forasmuch as a field that thou winnest, doth cancell all other thy euil actes: so likewise losyng it, all things well done of thee before, remaine vayne. Therefore, being necessary first to synde the men, it is requisite to come to the choise of them. They which vnto the warre haue giuen rule, will that the men be chosen out of temperate countries, to the intent they may haue hardinesse, and prudence, for as much as the hot countrie, breeds prudent men & not hardy, the colde, hardy and not prudent. This rule is good to be giuen, to one that were Prince of all the world, because it is lawfull for him to chuse men out of those places, which he shal thinke best. But minding to giue a rule, that euery one may vse, it is meete to declare, that euery common weale, and euery kingdome, ought to chuse their souldiours out of their owne countrie, whether it be hot, cold, or temperate: for that it is scene by olde ensamples, how that in euery countrie with exercise, ther is made good souldiours: because where nature lacketh, the industrie supplieth, the which in this case is worth more, then nature, and taking them in other places, you shal not haue of the choise, for choise is as much to say, as the best of a prouince, and to haue power to chuse those that wil not, as well as those that wil serue. Therefore you must take your choise in those places, that are subiect vnto you, for that you cannot take whom you list, in the countries that are not yours, but you must take such as wil go with you.

Cosimo. Yet there may be of those that will come, taken and left, and therefore, they may be called chosen.

Fabri-

Out of what
countie is best
to chuse souldi-
ours to make
a good electi-
on.

Fabritio. You say the trueth in a certaine maner, but consider the faulces which such a chosen man hath in himselfe, for that also many times it happeneth, that he is not a chosen man. For those y are not thy subiects and which willingly do serue, are not of the best, but rather of the worst of a Prouince, sozasmuch as if any be sclanderous, idle, unruly, without Religion, fugitive from the rule of their fathers, blasphemous, Displayers, in euery condition euill brought vp, be those, which wil serue, whose customes cannot be moze contrary, to a true and good seruice: Albeit, when there be offered vnto you, so many of such men, as come to aboute the number, that you haue appoynted, you may chuse them: but the matter being naught, the choise is not possible to be good: also many times it chaunceth, that they be not so many, as will make vp the number, whereof you haue neede, so that being constrained to take them all, it cometh to passe, that they cannot then be called chosen men, but hyred Souldiours. With this disorder the armies of Italy, are made nowe a dayes, and in other places, excepte in Almayne, because there they do not hire any by commaundement of the Prince, but according to the wil of them, that are disposed to serue. Then consider now, what maners of those auncient armies, may be brought into an armie of me, put together by lyke waies. Cosimo. What way ought to be vsed then? Fabritio. The same way that I said, to chuse them of their owne subiects, and with the authority of the Prince. Cosimo. In the chosen, shall there be likewise brought in any auncient fashions? Fabritio. You know well enough that ye: when he that should commaund them, were their Prince, or ordinary lord, whether he were made chiefe, or as a Citizen, & for the same time Capitaine, being a common weale, otherwise it is hard to make any thing good.

Cosimo. Why? Fabritio. I wil tel you a none: For this

The first Booke of

Whether it be
better to take
men out of
townes or out
of the country
to serve.

Of what age
soldiers ought
to be chosen.

this time I will that this suffice you, that it can not be wrought wel by other way. Cosimo. Having them to make this choise of men in their owne countries, whether iudge you that it be better to take them out of the citie, or out of the countrie. Fabritio. Those that haue written of such matters, do al agree, that it is best to chuse them out of the countrie, being men accustomed to no ease, nourished in labours, vsed to stand in the Sunne, to sie the shadow, knowing how to occupy the spade, to make a ditch, to carry a burthen, and to be without any deceit, and without maliciousnes. But in this part of my opinion should be, that being two sortes of Soldiours, on foot, and on horsebacke, that those on foote, should be chosen out of the countrie, and those on horsebacke, out of the citie. Cosi. Of what age would you chose them? Fab. I would take them, when I had to make a new armie, from xvii. to xl. yeares: when it were made already, and I had to restore them, of xvii. allwaies. Cosimo. I do not vnderstand well this distinction. Fabritio. I shall tell you: when I should ordeine an host to make warre, where were no host already, it should be necessary to chuse all those men, which were most fit and apt for the warre, so that they were of seruicable age, that I might be able to instruct them, as by mee shalbe declared: but when I would make my choise of men in places, where a power were already prepared for supplying of the same, I would take them of xvii. yerres: for as much as the other of more age, be already chosen and appointed. Cosimo. When would you prepare a power like to those which is in our countrie? Fabri. Vea truly, it is so that I would arme them, Capitaine them, exercise and order them in a maner, which I cannot tell, if you haue ordered them so. Cosimo. Then do you praise the keeping of order?

Fabritio. Wherefore would you that I should dispraise it? Cosimo. Because many wise men haue alwaies

waies blamed it.

Fabritio. You speake against all reason to say that a wise man blameth order, he may be well thought wise, and be nothing so.

Cosimo. The naughtie proofe which it hath alwaies, maketh vs to haue such opinion thereof.

Fabritio. Take heede it be not your fault, and not the keeping of order, the which you shal know, before this reasoning be ended.

Cosimo. You shall do a thing most thankfull, yet I will say concerning the same, that they accuse it, to the entent you may the better iustify it. They say thus, either it is vnprofitable, and we trusting on the same, shall make vs to lese our state, or it shall bee vertuous, and by the same meane, he that gouerneth may easily depriue vs thereof. They alledge the Romanes, who by meane of their owne powers, lost their liberty. They alledge the Aenecians and the French king, which Aenecians, because they will not be constrayned, to obey one of their owne Citizens, vse the power of straungers: and the French king hath disarmed his people, to bee able more easily to commaund them, but they which like not the ordinaunces, feare much more the vnprofitableness, that they suppose may insue thereby, then any thing else: the one cause which they alledge is, because they are vnerpert: the other, for that they haue to serue perforce: for asmuch as they say, that the aged be not so disciplinable, nor apt to learne the seate of armes, and that by force, is done neuer any thing good.

Fabritio. All these reasons that you haue rehearsed, bee of men which knoweth the thing full little, as I shall plainely declare. And first concerning the vnprofitablenesse, I tell you, that there is no seruice used in any countrie more profitable, then the seruice by the subiectes of the same, nor the same seruice cannot be prepared, but in this manner: and for that this nee-

De.

Deh

The first Booke of

By what
meanes Soldi-
ours be made
bold & expert.

death not to be disputed of, I wil not lose much time: be-
cause all the ensamples of auncient histories, make for
my purpose, and for that they alledge the lacke of expe-
rience, and to vse constraint: I say how it is true, that
the lacke of experience, causeth lacke of courage, & con-
straint, maketh euill contention: but courage, and ex-
perience they are made to get, with the maner of ar-
ming them, exercising and ordering them, as in proce-
ding of this reasoning, you shall heare. But concerning
constraint, you ought to vnderstand, y^e the men which
are conducted to warfare, by commaundement of their
Prince, they ought to come, neither altogether forced,
nor altogether willingly, for as much as too much wil-
lingnesse would make the inconueniences, where I
told afoze, that he should not be a chosen man, & those
would be few that would goe: and so too much con-
straint will bring forth naughty effectes. Therefore,
a meane ought to be taken, where is not all constraint,
nor all willingnesse: but being drawen of a respect,
that they haue towards their Prince, where they feare
more the displeasure of the same, then the present paine,
and alwayes it shall happen to be a constraint, in ma-
ner mingled with willingnesse, that there cannot grow
such euill contentation, that it make euill effectes. Yet
I say not for all this, that it cannot be overcome, for
that full many times, were overcome the Romane ar-
mies, and the army of Anibal was overcome, so that
it is scene, that an armie cannot be ordained so sure,
that it cannot be ouerthrowen. Therefore, these your
wise men ought not to measure this vnprofitablenesse,
for hauing lost once, but to beleue, that lyke as they
lose, so they may winne, and remedie the occasion of
the losse: and when they shall seeke this, they shall finde,
that it hath not bene through fault of the way, but of
the order, which had not his perfection, and as I haue
said, they ought to prouide, not with blaming the or-
der

der, but with redressing it, the which how it ought to be done, you shall vnderstand, from point to point. Concerning the doubt, least such ordinaunces, take not from thee the state, by meane of one, which is made head thereof, I aunſwere, that the armure on the backes of Citizens, or ſubiectes, giuen by the diſpoſition of order and law, dyd neuer harme, but rather alwaies it doth good, and maintaineth the Citie, much longer in ſuretye through helpe of this armure, then without. Rome continued free CCC. yeeres, and was armed. Sparta viii. C. Many other Cities haue bene diſarmed, & haue remained free, leſſe then xl. For as much as cities haue neede of defence, and when they haue no defence of their owne, they hire ſtraungers, and the ſtraungers defence, ſhall hurt much ſoner the common weale, then their owne: becauſe they be much eaſier to be corrupted, and a Citizen that becommeth mightie, may much ſoner vſurpe, & more eaſely bring his purpoſe to paſſe, where the people be diſarmed, that he ſeeketh to oppreſſe, beſides this, a Citie ought to feare a great deale more, two enemies then one. The ſame Citie that vſeth ſtraungers power, feareth at one inſtant the ſtraunger, which it hireth, and the Citizen: and whether this feare ought to be, remember the ſame, which I rehearſed a litle agoe of Frances Sforza. That Citie, which vſeth her owne proper power, feareth no man, other then onely her owne Citizen. But ſo for all the reaſons that may be ſaid, this ſhall ſerue mee, that neuer any ordeyned any common weale, or Kingdome, ſhould not thinke, that they them ſelues, that inhabite the ſame, ſhould with their ſwordes defend it.

A Citie that vſeth the ſervice of ſtraungers, feareth at one inſtant the ſtraungers which it hireth, & the Citizens of the ſame.

And if the Venicians had bene ſo wiſe in this, as in all their other orders, they ſhould haue made a new Monarchie in the world, whom ſo much the more deſerue blame, hauing bene armed of their firſt giuer of lawes: for hauing no dominion on the land, they were

D. n.

armed

The first Booke of

armed on the sea ; where they made their warre virtuously , and with weapons in their handes , increased their countrie . But when they were driven , to make warre on the land , to defend Vicenza , where they ought to haue sent one of their Citizens , to haue fought on the land , they hired for their Capitaine , the Marques of Mantua : this was the same foolish act , which cut of their legges , from climbing into heauen , and from enlarging their dominion : and if they did it , because they beleaued , that as they knew , how to make warre on the sea , so they mistrusted themselves , to make it on the land , it was a mistrust not wise : for as much as more easely , a Capitaine of the sea , which is vsed to fight with the windes , with the water , & with men , shall become a Capitaine of the land , where he shall fight with men onely , then a Capitaine of the land , to become a Capitaine of the sea . The Romanes knowing how to fight on the land , and on the sea , comming to warre , with the Carthaginens , which were mightie on the sea , hired not Greekes , or Spaniards , accustomed to the Sea , but they committed the same care , to their Citizens , which they set on land , and they overcame . If they did it , for that one of their Citizens should not become a tirant , it was a feare finally considered : for that besides the same reasons , which to this purpose , a litle afore I haue rehearsed , if a Citizen with the powers on the sea , was neuer made a tirant in a Citie standing in the sea , so much the lesse he should haue bene able to accomplish this with the powers of this land : whereby they ought to see that the weapons in the handes of their Citizens could not make tirantes , but the naughtie orders of the gouernement , which maketh tirannie in a Citie , and they hauing good gouernement , they neede not to feare their owne weapons : they took therefore an vnwise waie , the which hath bene occasion to take from them much glorie , and much felicitie . Concerning the
error

error which the king of Fraunce committeth, not keeping instructed his people in the warre, the which those your wise men alledge for ensample, there is no man, (his perticuler passions laide aside) that doth not iudge this fault to be in the same kingdome, and this negligence onely to make him weak. But I haue made to great a digression, and peradventure am come out of my purpose, albeit, I haue made it to auail were you, and to shew you that in no countrey, there can be made sure foundation, for defence in other powers, but of their owne subiectes: and their owne power cannot be prepared otherwise, then by way of an ordinance, nor by other way to induce the fashion of an armie in any place, nor by other meane to ordaine an instruction of warrefare. If you haue read the orders, which those first kinges made in Rome, and inespially Seruo Tullio, you shall finde that the orders of the Clasi is no other, then an ordinance, to be able at a sodaine, to bring together an armie, for defence of y^e Citie. But let vs returne to our choise, I saye againe, that hauing to reuelue an olde order, I would take them of .xvii. hauing to make a new army, I would take them of all ages, betwene .xvii. and .xl. to be able to warre straight way.

Cosimo. Would you make any difference, of what science you would chuse them?

Fabritio. The authours, which haue written of the arte of warre, make difference, for that they will not, that there bee taken fowlers, fishers, Cookes, Vau-des, nor none that vse any science of voluptuousnesse. But they will, that there bee taken Plowmen, fersmers, Smithes, Carpenters, Butchers, Hunters, and such like: but I would make litle difference, through coniecture of the conscience, concerning the goodnesse of the man, notwithstanding, in as much as to be able with more profite to vse them, I would make difference, and for this cause, the cuntry men, which are

Of what science foldiers ought to be chosen.

The first booke of

used to till the ground, are more profitable then any other. Next to whom be Smithes, Carpenters, Ferrars, Masons, whereof it is profitable to haue enough: for that their occupations, serue well in many thinges: being a thing very good to haue a souldiour, of whom may be had double seruice.

Cosimo. Whereby do they know those; that be, or are not sufficient to serue.

Fabritio. I will speake of the manner of chusing a new ordinance, to make an armie after, for that, part of this matter, both come also to be reasoned of, in the election, which should be made for y^e replenishing, or restoring of an olde ordinance. I say therefore, that the goodnesse of one, which thou must chuse for a Souldiour, is knowen either by experice, through meane of some of his w^{or}thy doinges, or by coniecture. The pro^{of} of vertue, cannot be found in men which are chosen of newe, and which neuer afore haue bene chosen, and of these are found either few or none, in the ordinance that of new is ordeyned. It is necessary therefore, lacking this experience, to runne to the coniecture, which is taken by the yeeres, by the occupation, and by the personage: of those two first, hath bene reasoned, there remaineth to speake of the third. And therefore, I saye how some haue willed, that the souldiour be great, amongst whom was Pirrus. Some other haue chosen them onely, by the lustinesse of the body, as Caesar did: which lustinesse of body and munde, is coniectured by the composition of the members, and of the grace of the countenance: & therefore, these that write saye, that they would haue the eyes lively and cherefull, the necke full of sinowes, the breast large, the armes full of muscles, the fingers long, litle belly, the flankes round, the legges and feete dry: which partes are wont alwaies to make a man nimble and strong, which are two thinges, that in a souldiour are sought aboute all other.

How to chuse
a Souldiour.

other. Regarde ought to be had aboute all things, to his customes, and that in him be honesty and shame: otherwise, there shal be chosen an instrument of mischief, and a beginning of corruption: for that let no man beleue that in the dishonest education, and filthy mynde, there may take any vertue, which is in any part laudable. And I thinke it not superfluous, but rather I beleue it to be necessary, to the entent you may the better vnderstand, the importance of this chosen, to tell you the maner, that the Romane Consuls, in the beginning of their rule, obserued in the choosing of their Romane legions: in the which choise of men, because the same legions were mingled with olde soldours, and new, considering the continuall warre they kept, they might in their choise proceede, with the experience of the old, and with the coniecture of the new, and this ought to be noted, that these men be chosen, either to serue incontinently, or to exercise them incontinently, and after to serue when neede should require. But my intention is to shew you, how an army may be prepared in the countrie, where there is warlike discipline: in which countrie, chosen men can not be had, to vse the straight way, but there, where the custome is to leue armies, and by meane of the Prince, they may then well be had, as the Romanes obserued, and as is obserued at this day among the Swisers: because in these chosen, though there be many new men, there bee also so many of the other olde Soldours, accustomed to serue in the warlike orders, where the newe mingled together with the olde, make a body vnted and good, notwithstanding, that the Emperours after, beginning the stations of ordinary Soldours, had appoynted ouer the newe Soldours, which were called Tironi, a maister to exercise them, as appeareth in the life of Massimo the Emperour. The which thinge, while Rome was free, not onely in the armies, but in the
citic

The first booke of

citie was ordeined: and the exercises of warre, being accustomed in the same, where the young men did exercise, they grew, that being chosen after to go into war, they were so used in the sayd exercise of warfare, that they could easily worke in the true: But those Emperours hauing after put downe these exercises, they were constrained to vse the waies, that I haue shewed you. Therefore, coming to the maner of the chosen Romane, I say that after the Romane Consulles (to whom was appoynted the charge of the warre) had taken the rule, minding to ordene their armies, for that it was the custome, that either of them should haue two Legions of Romane men, which was the strength of their armies, they created xiiii. Tribunes of warre, and they appointed sixe for euery Legion, whom did the same office, which those do now a dayes, that we call Constables: they made after to come together, all the Romane men apt to beare weapons, and they put the Tribunes of euery Legion, separte the one from the other. Afterward, by lot they drew the Tribes, of which they had first to make the chosen, and of the same Tribe they chose foure of the best, of which was chosen one of the Tribunes, of the first Legion, and of the other three was chosen, one of the Tribunes of the second legion, of the other two there was chosen one of the tribunes of y^e third, & the same last fell to the fourth Legion. After these iiii. they chose other foure, of which, first one was chosen of the tribunes of the second legion, the second of those of the third, the third of these of the fourth, the fourth remained to the first. After, they chose other iiii. the first chose y^e third, the second the fourth, the third the fifth, the fourth remainned to the second: and thus they varied successulley, this maner of choosing, so that the election came to bee equall, and the Legions were gathered together: and as afore we sayd, this choise might be made to vse straight way

way, for that they made them of men, of whom a good part were experienced in the very warfare in dede, & all in the faigned exercised, and they might make this choise by coniecture, and by experience. But where a power must be ordeyned of new, and for this to chuse them out of hand, this chosen cannot be made, sauing by coniecture, which is taken by considering their ages and their likelnesse.

¶ Cosimo. I beleue all to be true, as much as of you hath bene spoken: but before that you procede to other reasoning, I would aske you one thing, which you haue made me to remember: saying that the chosing, that is to be made where men were not used to warre, ought to be made by coniecture: for asmuch as I haue heard some menne, in many places dispraise our ordinaunce, and inesppecially concerning the number, for that many say, that there ought to be taken lesse number, wherof is gotten this profit, that they shall be better and better chosen, and men shall not be so much diseased, so that there may be giuen the some reward, wher by they may be more contented, and better be commaunded, whereof I would vnderstand in this part your opinion, and whether you loue better the great number, then the litle, & what way you would take to chuse them in the one, and in the other number.

Fabritio. Without doubt it is better, and more necessary, the great number, then the litle: but to speake more plainly, where there cannot be ordeyned a great number of men, there can not be ordeyned a perfect ordinaunce: and I will easely confute all the reasons of them propounded. I say therefore first, that the lesse number where is many people, as is for ensample Tuscane, maketh not that you haue better, nor that the chosen be more excellent, for that minding in chosing the men, to iudge them by experience, there shall bee found in the same countrie most few, whome expe-

The first Booke of

rience should make prouable, both for that fewe hath bene in warre, as also for that of those, most fewe haue made triall, whereby they might deserue to be chosen before the other: so that he which ought in like places to chuse, it is meete he leaue aparte the experience, and take them by coniecture. Then being brought likewise into such necessitie, I would vnderstand, if there come before mee twentie young menne of good stature, with what rule I ought to take, or to leaue any: wherewith out doubt, I beleue that euerie man will confesse, how it is lesse error to take them all, to arme them and exercise them, being not able to know, which of them is best, and to reserue to make after more certaine chosen, when in practising them with exercise, there shall bee knownen those of most spirite, and of most life: which considered, the chusing in this case a fewe, to haue them better, is altogether naught.

Concerning diseasing lesse the countrie, and men, I say that the ordinaunce, either cuill or litle that it be, causeth not any disease, for that this order doth not take men from any of their busines, it bindeth them not, that they can not go to do any of their affayres: for that it bindeth them onely in the idle dayes, to assemble together, to exercise the, the which thing doth no hurt, neither to the countrie, nor to the men, but rather to young men, it shall bring delight: for that where vylve on the holyc daie, they stand idle in tippling houses, they will goe for pleasure to those exercises, for that the handling of weapons, as it is a goodly spectacle, so vnto young men it is pleasaunt. Concerning to be able to pay the lesse number, and for this to keepe them more obedient, and more contented, I answere, how there cannot be made an ordinaunce of so few, which may be in maner continually payed, where the same payment of theirs may satisfie them. As for ensample, if ther were ordeyned a power of v. thousand men, for to pay them after such sort, that it

it might be thought sufficient, to content them, it shall be conuenient to geue them at least, tenne thousande crownes the moneth: first, this number of men are not able to make an armie, this paye is intollerable to a state, and of the other side, it is not sufficient to keepe men contented, & bound to be able to serue at all times: so that in doing this, there shall be spent much, and a small power kept, which shall not be sufficient to defende thee, or to do any enterprise of thine. If thou shouldest giue them more, or shouldest take more, so much more impossibilitie it should be, for thee to pay them: if thou shouldest giue them lesse, or should take lesse, so much the lesse contentation should be in the, or so much the lesse profite they shall bring thee. Therefore those that reason of making an ordinance, & whylest they tarry at home to pay them, the reason of a thing either impossible, or vnprofitable, but it is necessary to pay them when they are taken vp to be lead to the warre: albeit though such order should somewhat diseale those, in time of peace, that are appointed in the same, which I see not how, there is for recompence all those benefites, which a power brings, that is ordeined in a countrie: for that without the same, there is nothing sure. I conclude, that he that will haue the little number, to be able to pay them, or for any of the other causes alledged of you, doth not understand, for that also it maketh for my opinion, that euery number shall diminish in thy hands, through infinite impediments which men haue: so that the litle number shall tourne to nothing: againe having the ordinance great, thou maicst at thy pleasure vse few of many, besides this, it must serue thee in dede, and in reputation, and alwaies the great number shall giue thee most reputation. Moreover, making the ordinance to keepe man exercised, if thou appoint a few number of men in many Countries, the bandes of men be so farre a sinder, the one from

The first Booke of

the other, that thou canst not without their most grievous losse, gather them together to exercise them, and without this exercise, the ordinance is vnprofitable, as hereafter shall be declared.

Cosimo. It sufficeth vpon this my demaunde, that which you haue sayd, but I desire now, that you declare me another doubt. They say, that such a multitude of armed men, wil make confusion, discention, and disorder in the countrie where they are.

Fabritio. This is an other vaine opinion, the cause wherof, I shal tell you: such as are ordeined to serue in the warres, may cause disorder in two maners, either betweene themselves, or against other, which thinges most easily may be withstode, where the order of it selfe should not withstand it: for that concerning the discord among them selues, this order taketh it away, and doth not nourish it, for that in ordering them, you giue them armour and Capitaines. If the countrie where you ordeine them, be so vnapt for the warre, that there are not armours among the men of the same, and that they be so vnited, that they haue no heads, this order maketh them much fearser against y^e straunger, but it maketh them not any thing y^e more disvnited, for that men wel ordered, feare the law being armed, as well as vnarmed, nor they can nener alter, if the Capitaines which you giue them, cause not the alteration, and the way to make this, shall be told now: but if the countrie where you ordeine them, be warlike and disvnited, this order onely shalbe occasion to vnite them, because this order giueth them armours profitable for y^e warre, and heads, extinguishers of discention: where their owne armours be vnprofitable for the warres, & their heads nourishers of discord. For that so soone as any in the same countrie is offended, he resorteth by and by to his Capitaine to make complaint, who for to maintaine his reputation, comforteth him to reuengement,
not

not to peace. To the contrary doth the publike heade, so that by this meanes, the occasion of discord is taken away, and the occasion of vnion is prepered, & the provinces vnited and effeminated, get vtility, and main- taine vnion: the disvnited and discentious do agree, & the same their fearefulnessse, which is wont disorderly to worke, is touned into publike vtility. To mynde to haue them, to do no hurt against other, it ought to be considered, that they cannot do this, except by meane of the heads which gouerne them. To will that the heads make no disorder, it is necessary to haue care, that they get not ouer them too much authority. And you must consider that this authority, is gotten either by nature, or by accident: & as to nature, it behoueth to prouide, that he which is borne in one place, be not appointed to the men billed in the same, but be made head of those places, where he hath not any naturall acquaintance: and as to the accident, the thing ought to be ordeined in such maner, that euery yeare the heades may be chaunged from gouernement to gouernement: for as much as the continuall authority ouer one sort of men, breedeth among them so much vnion, that it may tourne easily to the preiudice of the Prince: which permuta- tions how profitable they be to those who haue vsed them, and hurtful to them that haue not obserued them, it is wel knolwen by the kingdome of the Assirians, and by the Empire of the Romanes, where is scene, that the same kingdome indured a thousand yeares without tumult, and without any ciuill warre: which proceeded not of other, then of the permutations, which from place to place euery yeare the same Capitaynes made, vnto whom were appointed the charge of the Armies. For for any other occasion in the Romane Empire, after the blood of Caesar was ertinguished, there grew so many ciuill warres, betwene the Capitaynes of the hostes, and so many conspiracies of the

How to pro-
uide against
such inconue-
niences as sol-
diers may
cause.

The occasion
of ciuill warre
among Ro-
manes.

The first Booke of

foresaid capitaines against the Emperours, but onely for keeping continually still those capitaines alwayes in one gouernement. And if in some of those first Emperours, and of those after, whom held the Emperye with reputation, as Adriane, Marcus, Seuerus, and such like, there had bene so much foresight, that they had brought this custome of chaunging the Capitaines in the same Empire, without doubt it should haue made them more quiet, and more durable: For that the Capitains should haue had lesse occasion to make tumults, the Emperour lesse cause to feare, and the Senate in the lackes of the successions, should haue had in the election of the Emperour, more authoritie and by consequence should haue bin better: but the naughty custome either for ignorance, or through the little diligence of men, neither for the wicked, nor good ensamples, can be taken away.

Cosimo. I cannot tell, if with my questioning, I haue as it were lead you out of order, because from the chusing of men, we be entered into an other matter, and if I had not bene a little before excused, I should thinke to deserue some reprehension.

Fabritio. Let not this disquiet you, for that all this reasoning was necessarie, minding to reason of the ordinance, the which being blamed of many, it was requisite to excuse it, willing to haue this first part of chusing men to be allowed. But now before I descend to the other partes, I will reason of the choise of men on horsebacke. Of the antiquity, these were made of the most richest, hauing regarde both to the yeeres, and to the quality of the man: and they chose 300, for a legion, so that the Romane horse in euery Consulles armie, passed not the number of 600. Cosimo. Would you make an ordinance of horse, to exercise them at home, and to vse their service when neede requires?

Fabritio. It is most necessary, and it cannot be done other

The numb. of
Horsemen that
the Romanes
chose for a Legion,
and for a
Consulles armie.

otherwise, minding to haue power, that it be the owne
proper, and not to purpose to take of those, which make
thereof an arte.

Cosimo. How would you chuse them?

Fabritio. I would imitate the Romanes, I would
take of the richest, I would giue them heads or chiefe
Capitains, in the same maner, as now a dayes to
ther is giuen, and I would arme them & exercise them.

The choosing
and ordering
of Footemen,
that is to be
observed at
this present.

Cosimo. To these should it be well to giue some pro-
uision?

Fabritio. Psea marie, but so much onely as is necessa-
rye to keepe the horse, for as much as bringing to thy
subiectes expences, they might iustly complayne of thee,
therefore it should be necessary, to pay them their
charges of their horse.

Cosimo. What number would you make? and how
would you arme them?

Fabritio. You passe into an other matter. I will

tell you in conuenient place, which shalbe

when I haue told you how footemen

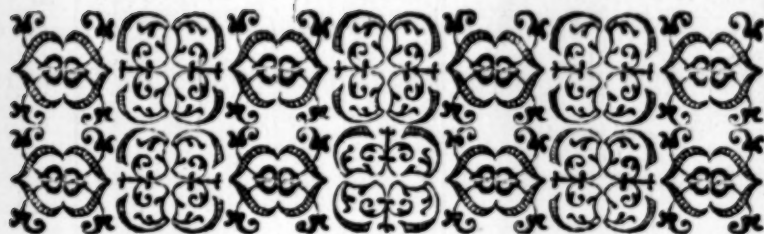
ought to be armed, and how

a power of men is pre-

pared, for a day

of battaile.

(.)



The second booke of the arte of warre,

of Nicholas Machiavel, Citezen and Secretarie
of Florence, vnto Laurence
Philip Strozze.



Beléue that it is necessarie,
men being found, to arme them,
and minding to doe this, I sup-
pose that it is a needefull thing
to examine, what armour the
antiquitie vsed, and of the same
to chuse the best. The Ro-
manes deuised their soote menne
in heaue and lighte armed:

How the Ro-
manes armed
their Soldiers,
& what we-
pons they vsed

Those that were light armed, they called by the name
of Veliti: Under this name were vnderstood all those
that threw with Slinges, shot with Crossebowes,
cast Dartes, and they vsed the most part of them for
their defence, to weare on their head a *Murion*, with a
Targaet on their arme: they fought out of the orders,
and farre of from the heaue armed, which did weare a
head peece, that came down to their shoulders, a *Corse-*
let, which with the tases came downe to the knees, and
they had the legges and armes, couered with greaues,
and *vambraces*, with a *targaet* on the left arme, a yard
and a halfe long, & three quarters of a yard broad, which
had a hope of Iron vpon it, to be able to sustaine a
blow, and an other vnder, to the intent, that it being
deuied to the earth, it should not breake: for to offend,
they had girdle on their left flanke a sword, the length
of a yeard and a naile, on their right side, a *Dagger*:
they had a darte in euery one of their handes, the which
they called *Pilo*, and in the beginning of the fight, they
threw those at the enimie. This was the ordering,
and

and importaunce of the armour of the Romanes, by the which they possessed all y^e world. And although some of these aunient writers gaue them, besides the foresayd weapons, a staffe in their hand like vnto a Partasen, I cannot tell how a heauie staffe, may of him that holdeth a Targaet be occupied: for y^e to handle it with both hands, the Targate should be an impediment, and to occupy the same with one hand, there can be done no good therewith, by reason of the weightinesse thereof: besides this, to fight in the strong, & in the orders with such long kinde of weapon, it is vnprofitable, except in the first front, where they haue space enough, to thrust out all the staffe, which in the orders within, cannot be done, for that the nature of the battaile (as in the order of the same, I shall tell you) is continually to throng together, which although it be an inconuenience, yet in so doing they feare lesse, then to stand wide, where the perill is most euident, so that all the weapons, which passe in length a yard & a halfe, in the throng, be vnprofitable: for that, if a man haue the Partasen, and will occupy it with both handes, put case that the Targaet let him not, he can not hurte with the same an enemye, whome is vpon him, if he take it with one hand, to the intent to occupie also the Targaet, being not able to take it, but in the middelt, there remaineth so much of the staffe behind, that those which are behind him, shall let him to weld it. And whether it were true, either that the Romanes had not this Partasen, or that hauing it, did litle good withal, read all the battailes, in the history thereof, celebrated of Titus Liuius, and you shall see in the same, most seldome times made mention of Partasens, but rather alwaies he saith, that the Dartes being throlwen, they layed their hands on their swordes. Therefore I will leaue this staffe, and obserue, concerning the Romanes, the sword for to hurte, and for defence the Targaet, with the other armour aforesaide.

The second Booke of

How the Greekes
did arme the
felmes, & what
weapons they
vsed againt
their enemies.

A braue and a
terrible thing
to the enemies

How the Ro-
manes armed
their Horse-
men in old
time.

The Greekes dyd not arme them selues so heavily,
for their defence, as the Romanes did: but for to offend
the enemies, they grounded more on their staves, then
on their swordes, and in especially the Fallangye of
Macedonia, which vsed staves, that they called Sarisse,
seuen yardes and a halfe long, with the which they ope-
ned the ranks of their enemies, and they kept the or-
ders in their Fallangye. And although some writers say,
that they had also the Targaet, I can not tell (by the
reasons aforesayde) how the Sarisse and they could
stand together. Besides this, in the battaile that Pau-
lus Emilius made, with Persa king of Macedonia, I doe
not remember, that there is made any mention of Tar-
gaettes, but onely of the Sarisse, and of the difficultie that
the Romane armie had, to ouercome them: so that I
coniecture, that a Macedonicall Fallange, was no other
wise, then is now a daies a battaile of Suzzers, & which
in their Pikes haue all their force, and all their power.
The Romanes did garnish (besides the armours) the
footemen with feathers: the which thinges makes the
sight of an armie of the friends goodly, to the enemies
terrible. The armour of the horsemen, in the same
first Romane antiquitie, was a round Targaet, and
they had their head armed, and the rest unarmed: They
had a sword and a staffe, with an Iron head onely be-
fore, long and small: whereby it happened, that they
were not able to stay the Targaet, and the staffe in
the incounting broke, and they through being unar-
med, were subiecte to hurtes: after, in proceesse of time,
they armed them as the footemen, albeit they vsed the
Targaet much shorter, square, and the staffe more
stiffe, and with two handes, to the entent, that brea-
king one of the heades, they might preualie with the
other. With these armours as well on fote, as on
horsebacke, the Romanes conquered all the world,
and it is to be beleued, by the fruit thereof, which is
seene

scene, that they were the best appointed armies, that
euer were: and Titus Linius in his history, doth testifie
very often, where conning to comparison with the
enemies armies, he sayeth: But the Romanes, by ver-
tue, by the kynde of their armours, and practise in the
seruice of warre, were superiours: and therfore I haue
more particularly reasoned of the armours of conquer-
rours, then of the conquered. But now mee thinkes
good, to reason onely of the maner of arming men at
this present. Footmen haue for their defence, a breast-
plate, and for to offend, a launce, sixe yardes and thre
quarters long, which is called a pike, with a sword on
their side, rather round at the point, then sharpe. This
is the ordinary arming of footmen now a dayes, for
that few there be which haue their legges armed, and
their armes, the head none, and those fewe, beare in
steede of a pike, a Halberde, the staffe whercof as you
know, is two yards and a quarter long, and it hath the
Iron made like an axe. Betwene them, they haue Har-
kebutters, the which with the violence of the fire, do the
same office, which in olde tyme the slingers did, and the
Crossebowshoters. This maner of arming was found
out by the Dutchmen, inesppecially of Suizzers, whom
being poore, and desirous to liue free, they were, and be
constrained to fight, with the ambition of the Princes
of Almane, who being riche, were able to keepe horse,
the which the same people could not do for pouerty.

Whereby it grew, that being on foote, mynding to de-
fende themselves from the enemies, that were on horse-
backe, it behoueth them to seeke of the auncient orders,
and to fynde weapons, which from the fury of hor-
ses should defende them: This necessity hath made
either to be maintained, or to be found of them the
auncient orders, without which, as euery pru-
dent man affirmeth, the footemen is altogether un-
profitable. Therefore, they tooke for their weapon the

F. II.

pike,

The maner
of arming me
now a dayes.

The inuention
of Pikes.

The second Booke of

pike, a most profitable weapon, not onely to withstand horses, but to ouercome them : and the Dutchmen haue by vertue of these weapons, and of these orders, taken such boldnes, that xv. or xx. thousande of them, wil assault the greatest number of horse that may bee: and of this, there hath bene experience enough within this xxv. yeares. And the insamples of their vertue hath bene so mightie grounded vpon these weapons, and these orders, that since King Charles passed into Italie, euery nation hath imitated them : so that the Spanish armies are become into most great reputation.

Cosimo. Which maner of arming do you praise most, either these Dutchmens, or the auncient Romanes?

Whether the Romanes maner in arming of men, be better then y^e arming of men that is vsed now a daies.

Fabritio. The Romanes without doubt, and I will tell you the commodity, and the discommodity of the one, and the other. The Dutch footmen, are able to withstand, and ouercome the horses: they bee most speedy to march, and to be set in aray, being not laden with armours: of the other part, they be subiect to all blowes, both farre of, and at hand: because they be vnarmed, they be vnprofitable vnto the battaile on the land, and to euery fighte, where is strong resistance. But the Romanes withstode, and ouercame the horses, as well as the Dutchmen, they were safe from blowes at hand, and farre of, being couered with armours: they were also better able to charge, and better able to sustaine charges, hauing Targettes: they might more aptly in the p^{re}are fight with the sword, then these with the pike, and though the Dutchmen haue likewise swordes, yet being without Targets, they become in such case vnprofitable: The Romanes might safely assaulte towne, hauing their bodies cleane couered with armour, and being better able to couer themselues with their Targettes. So that they had no other incommodity, then the waightinesse of

of their armour, and the pain to carry them, the which thinges they overcame with accustoming the body to diseases, and with hardening it, to be able to induce labour. And you know, how that in thinges accustomed, men suffer no griefe. And you haue to vnderstand this, that the footmen may be constrained to fight with footmen, and with horse, and alwaies those be vnprofitable, which cannot either susteine the horses, or being able to susteine them, haue notwithstanding neede to feare the footmen, which be better armed, and better ordeyned then they. Now if you consider the Dutchmen, and the Romanes, you shall finde in the Dutchmen activitie (as we haue said) to overcome the horses, but great disadvantage, when they fight with men, ordeined as they themselues are, and armed as the Romanes were, so that ther shall be this aduantage more of the one, then of the other, that the Romanes could overcome the men and the horses, the Dutchmen onely the horses.

Cosimo. I would desyre, that you would come to some more particular ensample, whereby we may better vnderstand.

Fabritio. I say thus, that you shall finde in many places of our histories, the Romane footmen to haue overcome innumerable horses; and you shall neuer finde, that they haue bene overcome of men on foote, for default that they haue had in their armour, or thorough the vantage that the enemy hath had in the armour: for that if the maner of their arming, should haue had default, it had bene necessary, that there should follow, the one of these two thinges, either that fynding such, as should arme them better then they, they should not haue gone still forwardes, with their conquestes, or that they should haue taken the straungers maners, and should haue left their owne, and for that it followed not in y^e one thing, nor in the other, there groweth that there may be easily coniectured,

f.iii.

that

The second booke of

An ensample
which pro-
ueth y^e Horse-
men with sta-
ues, cannot
preuaile a-
gainst footme
with pikes, &
what great ad-
uantage y^e ar-
med haue, a-
gainst the vn-
armed.

The victorie
of Carminuo-
la against the
Dutchmen.

that the manner of their arming was better then the same of any other. It is not yet thus happened to Dutch men, for that naughtie proofe hath bene scene made by them, when soeuer they haue chaunced to fight with men on foote prepared, & as obstinate as they, the which is growen of the vauntage, which the same haue encoū- fered in the enemies armours. Philip Vicecounte of Milaine, being assaulted of xviij. thousand Suizzers sent against them the Counte Carminuola, which then was his Capitaine. He with fife thousand horse, and a few footemen, went to meeete with them, and encountring them, he was repulled with his most great losse: where by Carminuola as a prudent man, knew straight way the puissance of the enemies weapons, and how much against the horses they preuailed, and the debility of the horses, against those on foote so appoynted: and gathering his men together againe, he went to fynde the Suizzers, and so soone as he was nere them, he made his men of armes to alight from their horse, and in the same maner fighting with them, he slue them al, except three thousand: the which seeing themselves to consume without hauing remedie, casting their weapons to the ground, yielded.

Cosimo. Whetherof coumeth so much disadvantage?

Fabritio. I haue a litle afore tolde you, but seeing that you haue not vnderstode it, I will rehearse it againe. The Dutchmen (as a litle before I saide vnto you) as it were vniarmed, to defend themselves, haue to offend the Pike and the Sword: they come with these weapons, and with their orders to fynde the enemies, whom if they be well armed, to defende themselves, as were the men of armes of Carminuola, which made them alyghte on foote, they came with the sword, and in their orders to fynde them, and haue no other difficultie, then to come nere to the Suizzers, so that they may reach them with the sword, for that so

so soon as they haue gotten vnto them, they fight safely: for asmuch as the Dutchman, can not strike the enemy with the Pike, who is vpon him, for the length of the staffe, wherefore it is conuenient for him, to put the hand to the sword, the which to him is vnprofitable, hee being vnarmed, and hauing against him an enemy, that is all armed. Whereby he that considereth the vantage, and the disadvantage of the one, and of the other, shall see, how the vnarmed, shall haue no manner of remedie, and the ouercomming of the first fight, and to passe the first pointes of the Pikes, is not much difficult, he that fighteth being well armed: for that the battailes go (as you shall better vnderstand, when I haue shewed you, how they are set together) and in countering the one the other, of necessitie they thrust together, after such sort, that they take the one thother by the bosome and though by the Pikes some be slaine or ouerthrowen, those that remaine on their feete, be so many, that they suffice to obtaine the victory. Whereof it grew, that Carminuola ouercame them, with so great slaughter of the Suizzers, and with little losse of his. Cosimo. Consider that those of Carminuola, were men of armes, who although they were on foote, they were couered all with steele, and therefore they were able to make the p[ro]se they did: so that me thinkes, that a p[ro]se ought to be armed as they, minding to make the verie same p[ro]se.

The battaile when they are a fighting, doe throng together.

Fabritio. If you should remember, how I told you the Romanes were armed, you would not thinke so: for as much as a man, that hath the head couered with Iron, the brest defended of a Corselet, and of a Targaet, the armes and the legges armed, is much more apte to defend himselfe from the Pike, & to enter among them, then a man of armes on foote. I will giue you a litle of a late ensample. There were come out of Cicilie, into the kingdome of Naples, a power of

The second booke of

of Spaniardes, for to go finde Consaluo, who was besieged in Barlet, of the Frenchmen: there made against them Mounſieur de Vhigni, with his men of armes, and with about foure thousand Dutchemen on foote: The Dutchemen incountered with their Pikes lowe, and they opened the power of Spaniardes: but those being holpe, by meane of their bucklers and of the agilitie of their bodies, mingled together with the Dutchmen, so that they might reach them with a sword, whereby happened the death, almost of all them, and the victorie to the Spaniards. Every man knoweth, how many Dutchmen were slaine in the battaile of Rauenna, the which happened by the very same occasion: for that the Spanish souldiours, got them within a sword's length of the Dutch souldiours, and they had destroyed them all, if of the French horsemen, the Dutchmen on foote, had not bene succoured: notwithstanding, the Spaniards close together, brought themselves into a safe place. I conclude therefore, that a good power ought not onely to be able to withstand the horses, but also not to haue feare of men on foote, the which (as I haue many times sayde) proceedeth of the armours, and of the order.

How to arme
men, and what
weapons to ap-
point them, af-
ter y^e Romane
maner, and
Dutch fashion

Colimo. Tell therefore, how you would arme them?
Fabritio. I would take of the Romane armours, and of the Dutchemens weapons, and I would that the one halfe, should bee appointed like the Romanes, and the other halfe like the Dutchemen: for, that if in five thousand footemen (as I shall tell you a litle hereafter) I should haue three thousand men with Targaettes, after the Romane manner, and two thousand Pikes, and a thousand Harkebutters, after the Dutch fashion, they should suffice: for that I would place the Pikes, either in the front of the battaile, or where I should feare most the horses, and those with the Targaets and swordes, shall serue mee to make a backe to the Pikes, and to winne the battaile, as I shall

shall shew you:so that I beleue, that a power thus ordayned, should overcome at this day, any other power.

Cosimo . This which hath bene said, sufficeth concerning footemen, but concerning horsemen, wee desire to understand, which you thinke more stronger armed, either ours, or the antiquitie.

Fabritio . I beleue that in these daies, hauing respect to the saddelles bolstered, and to the stiropes not vled of the antiquitie, they stand more strongly on horsebacke, then in the olde time, I thinke also they arme the more sure:so that at this day, a band of men of armes, payling very much, commeth to be with more difficultie withstode, then were the horsemen of old time: notwithstanding for all this, I iudge, that there ought not to be made more accompt of horses, then in olde time was made, for that (as afore is said) manie times in our dayes, they haue with the footemen receiued shame, and shall receiue alwayes, where they incounter, with a power of footemen armed, and ordered, as aboue hath bene declared. Tigrane king of Armenia, had against the armie of the Romanes, whereof was Capitaine Lucullo, C l. thousand horsemen, amongst the which, were many armed, like vnto our men of armes, which they called Catafratti, & of the other part, the Romanes were about sixe thousand, with xxv. thousand footemen: so that Tigrane seeing the armie of the enemies, sayde: these be horses enough for an imbassage: notwithstanding, incountering together, he was ouerthrowen: and he that writeth of the same fight, dispraiseth those Catafratti, declaring them to be vnprofitable: for that hee sayeth, because they had their faces couered, they had much a doe to see, and to offend the enemy, and they falling, being laden with armour, could not rise vp again, nor weld themselves in any maner to preuaile. I say therefore, that those people or kingdoines, which shall esteeme more the power of horses, then the po-

C. i.

were

The victory
of Lucullo, a-
gainst Tigran
king of Arme-
nia.

The second Booke of

For what purpose horsemen be most requisite.

uer of footemen be alwaies weake, and subiecte to all ruin, as by Italie hath bene scene in our time, & which hath bene taken, ruinated, and ouer run with straungers, through no other fault, then for hauing taken litle care, of the seruice on foote, and being brought the soldiers thereof, all on horsebacke. Yet their ought to be had horses, but for second, and not for first foundation of an armie: for that to make a discouery, to ouerrun, and to destroy the enemies countrie, and to keepe troubled and disquieted, the armie of the same, and in their armours alwaies, to let them of their victuals, they are necessary, and most profitable: but concerning for the day of battaile, and for the fight in the filde, which is the importaunce of the warre, and the ende, for which the armies are ordeined, they are more meete to follow the enemy being discomfited then to do any other thing which in the same is to be done, and they be in comparison, to the footemen much inferiour.

Cosimo. There is happened vnto mee two doubtles, the one, where I know, that the Parthians dyd not vse in the warre, other then horses, and yet they deuided the world with the Romanes: the other is, that I would that you should shew, how the horsemen can be withstoode of footemen, and whereof groweth the strength of these, and the debilitie of these?

Fabritio. Either I haue tolde you, or I minded to tell you, how that my reasoning of the affaires of warre, ought not to passe the boundes of Europe: when thus it is, I am met bound vnto you, to make accompte of the same, which is vsed in Asia, yet I must saye vnto you thus, that the warring of the Parthians, was altogether contrary, to the same of the Romanes: for as much as the Parthians, warred all on horsebacke, and in the fight, they proceeded confusedly, and scattered, and it was a manner of fight vnstable, and full of vncertaintie. The Romanes were (it may be sayde) almost

almost all on foote, & they fought close together & sure, and they ouercame diuersly, the one the other according to the largenes, or straightnes of the situation: for that in this the Romans were superiours in the same: the Parthians, who might make great p[ro]ofe with the same maner of warring, considering the region, which they had to defend, the which was most large: for as much as it hath the sea coast distant a thousande myles, the riuers thone from thother, two or thre dayes iourney, the Towns in like maner and the inhabitants few: so that a Romane armie heavy and slowe, by meanes of their armour, and their orders, could not ouer run it, without their grieuous hurt (those that defended it, being on horsebacke most expedite) so that they were to day in one place, & to morow distant fiftie myles. Where of it grew, that the Parthians might preuaile with their chualrie onely, both to the ruine of the armie of Crassus, & to the peril of the same, of Marcus Antonius: but I (as I haue told you) do not intend in this my reasoning, to speake of the warfare out of Europe, therefore I will stand vpon the same, which in times past the Romanes ordayned, and the Greekes, and as the Dutchmen do now a dayes. But let vs see to the other question of yours, where you desyre to vnderstande, what order, or what naturall vertue makes, that the footemen ouercome the horsemen. And I say vnto you first that the horses cannot goe, as the footemen in euery place: They are slower then the footmen to obey, when it is requisite to alter the order: for as much as if it bee needfull, either going forward, to tourne backward, or turning backward, to goe forwarde, or to moue themselves standing still, or going to stand still without doubt, the horsemen cannot do it so readie as the footemen: the horsemen can not, being of some violence, disordained, resourne in their orders, but with difficultie, although the same violence cease the which

The reason
why foot men
are able to
ouercome
horsemen.

The second Booke of

the footmen do most easily and quickly . Besydes this, it happeneth many times that a hardy man shall bee vpon a vyle horse, and a colward vpon a good, wherby it followeth, that this euil matching of stomackes, makes disorder . For no man doth maruaile, that a bande of footmen, susteineth all violence of horses: for that a horse is a beast, that hath sence, and knoweth the perilles, and with an ill will, will enter in them: and if you consider, what force maketh them go forward, and what holdeth them backward, you shall see without doubt, the same be greater, which keepeth them backe, then that which maketh them go forwardes: For that the spurre maketh them go forward, and of the other side, either the sword, or the pyke, keepeth them backe: so that it hath bene scene by the olde, and by the late experience, a band of footmen to be most safe, yea, invincible for horses. And if you should argue to this, that the heate, with which they come, maketh them more furious to encounter, who that would withstand them, and lesse to regard the pyke, then the spurre: I say, that if the horse so disposed, begin to see, that he must runne vpon the point of the pyke, either of himselfe, hee will refraine the course, so that so soone as he shall feele himselfe pricked, he will stand still at ones, or being come to them he wil tourne on the right, or on the left hand. Whereof if you wil make experience, proue to runne a horse against a wall: you shall finde few, with what so euer fury he come withall, will strike against it . Caesar hauing in ffraunce, to fight with the Swizzers, alighted, and made euery man alight on foote, and to auoyde from the arayes, the horses, as a thing more meete to flye, then to fight . But notwithstanding these natural impediments, which horses haue, the same Capitaine, which leadeth the footmen, ought to chuse wayes, which haue for horse the most impediments that may bee, and seldome tymes it happeneth, but that

How footmen
may saue them
selues from
Horsemen.

that a man may saue himselfe, by the qualite of the countrie: for that if thou march on the hills, the situation doth saue thee from the same furie, whereof you doubt, that they go withall in the plaine, few playnes bee, which through the tillage, or by meanes of y woods, do not assure thee, for that euery hillocke, euery bancke, although it be but small, taketh away the same heate, and euery culture where bee vines, and other trees, letteth the horses: and if thou come to battaile, the very same letteth happeneth, that chaunceth in marching: for as much as euery little impediment, that the horse hath, abateth his furre. One thing notwithstanding, I will not forget to tell you, how the Romanes esteemed so much their orders, and trusted so much to their weapons, that if they should haue had, to chuse either so rough a place to saue them selues from horses, wher they should not haue bene able to raunge their orders, or a place where they should haue neede, to feare most of horses, but bene able to defende their battaile, alwayes they tooke this, and left that: but because it is time to passe to the armie, hauing armed these Souldiours, according to the auncient and new vse, let vs see what exercises the Romanes caused them make, before the men were brought to y battaile. Although they be well chosen, and better armed, they ought with most great studie be exercised, for that without this exercise, there was neuer any Souldiour good: these exercises ought to be deuided into three partes, the one, for to harden the bodie, and to make it apt to take paynes, and to be more swifter and more readier, the other, to teach them how to handle their weapons, the thirde, for to learne them to keepe the orders in the armie, as wel in marching, as in fighting, and in the incamping: The which bee three principall actes, that an armie doeth: for as much, as if any armie march, incampe and fight with order, and expertly, the Capitaine leeseeth not his

G.iii.

honour,

The exercise
of Souldiers
ought to be de
uided into iii.
parts.

The second Booke of

What exercises the ancient common weales used to exercise their youth in, and what command they issued thereby.

How the antiquitie learned their young souldiours to handle their weapons.

honour, although the battaile should haue no good ende. Therefore all the ancient common weales, prouided these exercises in maner, by custome, and by law, that there should not be left behynde any part thereof. They exercised then their youth, for to make them swifte in running, to make them ready, in leaping, for to make them strong, in throwing the barre, or in wrestling: and these three qualities, be as it were necessary in Souldiours. For that swiftnesse, maketh them apt to possesse places, before the enemy, and to come to them vnlooked for, and at vnwares to pursue them, when they are discomforted: the readines, maketh them apt to auoide a blow, to leape ouer a ditch, to winne a bancke: strength maketh them the better able to beare their armours, to encounter their enemy, to withstand a violence. And aboue all, to make the body the more apt to take paynes, they used to beare great burthens, the which custome is necessary: for that in difficult expeditions, it is requisite many times, that the Souldiour besyde his armours, beare victuals for many dayes, and if he were not accustomed to this labour, he could not do it: and without this, there can neither be auoided a perill, nor a victorie gotten with same. Concerning to learne how to handle the weapons, they exercised them, in this maner: they would haue y^e young men, to put on armour, which should waye swiue as much, as their field armour, and in steede of a sword, they gaue them a cudgell leaded, which in comparisen of a verie sword in deede, was most heavy: they made for euery one of them, a post to be set vp in the ground, which should be in the height two yards and a quarter, and in such manner, and so strong, that the blowes should not stir nor hurle it downe, against the which poste, the young men with a Targaet, and with the cudgell, as against an enemy did exercise, and somewhyles he stroke, as though he would hurt the heade, or the face, somewhyles

while he retired backe , an other while he made for-
warde:and they had in this exercise, this aduertisement,
to make them apte to couer themselves, and to hurt the
enemie : and hauing the counterfait armours most hea-
uie , their ordinarie armours seemed after vnto them
more lighter. The Romanes , would that their Soul-
diours should hurt with the pike , and not with the
cut, as well because the pike is more mortall, & hath
lesse defence, as also to y intent, that he that should hurt,
might lye the lesse open, & be more apte to redouble it,
then with cuttes. Do not maruaile that these auncient
men, should thinke on these small things, for that where
the incountering of men is reasoned of , you shall per-
ceiue , y every litle vauntage, is of great importauce:
and I remember you the same , which the writers of
this declare, rather then I do teach you . The antiqui-
tie esteemed nothing more happie , in a common weale,
then to be in the same many men exercised in armes :
because not the shining of precious stones and of golde
maketh that the enemies submit themselves vnto thee,
but onely the feare of the weapons: afterward , the er-
rors which are made in other things, may sometimes
be corrected, but those which are done in the warre, the
payne straightwaie comming on , cannot be amended.
Besides that, the knowledge to fight, maketh men more
bold , because no man feareth to do that thing , which
he thinketh to haue learned to do. The antiquitie would
therefore , that their Citezens should exercise them-
selues , in all maner seates , and they made them to
throw against the same poste , dartes much heavier
then the ordinarie : the which exercise , besides the ma-
king men expert in throwing , maketh also the arme
more nimble , and much stronger . They taught them
also to shote in the long bowe , to whoyle with the sling,
and to all these things, they appointed maisters, in such
manner , that after when they were chosen for to

What the an-
tiquitie este-
med most hap-
pie in a com-
mon weale.

Meuster Mai-
sters, for y ex-
ercising of
young men
vnexperi.

The second Booke of

go to the warre, they were now with minde and disposition, souldiours. For they remayned them to learne other, then to goe in the orders, and to maintaine themselves in those, either marching, or fighting: The which most easely they learned, mingling themselves with those, which had long time serued, whereby they knew how to stand in the orders.

Cosimo. What exercises would you cause them to make at this present?

The exercises
that souldiers
ought to make
in these daies.

Fabricio. A good many of those, which haue bene declared, as running, and wrestling, making them to leape, making them to labour in armours, much heavier then the ordinarie, making them shote with Crosse bowes, and long bowes, whereunto I would ioine the harkabus, a new instrument (as you know) very necessary, and to these exercises I would vse all the youth of my state, but with greater industrie, and more sollicitatione y^e same part, which I should haue already appointed to serue, and alwaies in the idle dayes, they should be exercised.

The exercise
of swimming.

I would also that they should learne to swimme, the which is a thing very profitable: for that there be not alwaies, bridges ouer riuers, boats be not alwaies readye: so that thy armie not knowing how to swimme, remayneth deprived of many commodities: and many occasions to worke well, is taken away. The Romanes for none other cause had ordeyned, that the young men should exercise themselves in Campus Martius, then onely, for that hauing Tiber at hand, they might, being wearied with the exercise on land, refresh themselves in the water, and partly in swimming, to exercise themselves. I would make also, as y^e antiquitie, those which should serue on horsebacke to exercise, the which is most necessarie, for that besides to know how to ride, they must know how on horsebacke, they may preuaile of the. And for this they had ordeyned horses of wood, vpon the which they practised, to leape

Tiber is a river running through Rome, the water whereof will neuer corrupt

The exercise
of vaulting, &
commoditie
thereof.

scape by armed, and unarmed without any help, and on euerie hand: the which made, that at ones, and at a beck of a Capitaine, the horsemen were on foote, and likewise at a token, they mounted on horseback. And such exercises, both on foote and on horsebacke, as they were then easy to be done, so now they should not be difficult to the same common weale, or to the same Prince which would cause them to be put in practise of their young men. As by experience is seene, in certayne Cities of the West countrie, where is kepte a liue like maners with this order. They deuide all their inhabitants into diuers partes: and euery part they name of the kind of those weapons, that they vse in the warre. And for that they vse Pikes, Halberds, Bowes, and Harkebuses, they call them Pike men, Halberders, Harkebutters, and Archers: Therefore, it is meete for all the inhabitants to declare, in what orders they will be appointed in. And for that all men, either for age, or for other impediments, be not fit for the warre, euery order maketh a choise of men, & they call the the s wozen, whom in idle daies, be bound to exercise themselves in those weapons, whercof they be named: & euery man hath his place appointed him of the cominaltie, where such exercise ought to be made: and those which be of the same order, but not of the s wozen, are contributaries with their mony, to the same expenses, which in such exercises be necessarie: therefore the same y they do, wee may do. But our small prudence doth not suffer vs, to take any good way. Of these exercises there grew, that the antiquitie had good souldiours, and that now those of the West, be better men then ours: for as much as the antiquitie exercised them, either at home (as those common weales do) or in the armies, as those Emperours did, for the occasions aforesaid: but wee, at home will not exercise them, in Campe wee cannot, because they are not our subiects, & for that we are not able to binde

v.

them

An order that
is taken in cer-
tain countries,
concerning
exercises of
warre.

The second Booke of

What know-
ledge a soul-
diour ought to
haue.

then to other exercises then they themselues list to do :
the which occasion hath made, that first the armies bee
neglected, & after the orders, and that the kingdomes, and
the common weales, in especially Italians, liue in such
debelitie. But let vs tourne to our order, and following
this matter of exercises, I say, how it sufficeth not to
make good armies, for hauing hardened the men, made
them strong, swift, and handsome, where it is neede-
full also, that they learne to stand in the orders, to obey
to signes, to soundes, and to the voice of the capitayne:
to know, standing, to retire themselues, going for-
wardes, both fighting, & marching to maintayne those :
because without this knowledge, with all serious dili-
gence obserued, and practised, there was neuer armie
good: and without doubt, the fierce and disordered men,
be much more weaker, then the fearefull that are orde-
red, for that the order driueth away from men feare,
the disorder abateth fiercenesse. And to the intent you
may the better perceiue that, which here following
shalbe declared, you haue to vnderstand, how euery
nation, in the ordering of their men to the warre, haue
made in their host, or in their armie, a principall mem-
ber, the which though they haue varied with the name,
they haue litle varied with the number of the men: for
that they all haue made it, betwene sixe & viii. M. men,
This number of men was called of the Romanes, a
Legion, of Greekes, a Fallange: of Frenchmen, Caterua:
this very same in our time of the Suizzers, whom only
of the auncient warfare, keepe some shadow, is called
in their tongue that, which in ours signifieth the maine
battaile. True it is, that euery one of them, hath after
decided it, according to their purposes. Wherefore mee
thinkes best, that we ground our talke, vpon this
name most known, and after, according to the aun-
cient, & to the orders now a dayes, the best that is pos-
sible to ordayne it: and because the Romanes deu-

ded their Legion, which was made betwene five and six thousand men, in ten Cohortes, I will that we divide our maine battaile, into ten battails, and that we make it of six thousand men on fote, and we wil giue to euery battaile. **CCCC** L. men, of which shall be 400. armed with heavy armour, and 50, with light armour: the heaue armed, shall be 300. Targettes with swordes, and shall be called Target men: and 100. with pikes, which shall be called ordinary pykes: the light armed shall be 50. men armed with harkabuses, Crosse bowes, and Partisans, and small Targaets, and these by an auncient name, were called ordinary Teliti: all the ten battails therfore, comes to haue three thousand Targaet men, a thousand ordinary pykes, 400. ordinary Teliti, all which make the number of fower thousand and five hundred men. And we said, that we would make the maine battaile of six thousand: therfore there must be added an other thousande, five hundred men, of the which I will appoint a thousande with Pikes whom I will call extraordinary Pykes, and five hundred light armed, whom I will call extraordinary Teliti: and thus my men should come (as a little before I haue sayd) to be made halfe of Targaets, and halfe of pikes and other weapons. I would appoint to euery battaile, or band of men, a Conestable, fower Centurions, and fourtie Peticapitains, and moreover a heade to the ordinary Teliti, with five Peticapitains: I would giue to the thousande extraordinarie pikes, three Conestables, ten Centurions, and a hundred peticapitaines: To the extraordinary Teliti, 2. Conestables, 5. Centurions, and 50. peticapitains: I would then appoint a general head, ouer all y maine battaile: I would that euery Conestable should haue an Ansigne, and a Drum. Thus there shoulde be made a maine battaile of ten battailes of three thousande Targaet men, of a thousande ordinary Pykes,

A Cohort is a band of men. Of what number & of what kinde of armours & weapons a maine battaile ought to be, and the distributing & appointing of the same.

Velite are light armed men.

The Captains that are appointed to euery band of men.

The second Booke of

of a thousand extraordinarie, of five hundred ordinarie
Ueliti, of five hundred extraordinarie, so there should
come to be six thousande men, amongst the which
there should be M. D. Deticapitaines, and moreouer
xv. Constables, with xv. Drummes, and xv. Ansignes,
lv. Centurions, r. heads of the ordinarie Ueliti, and a
capitaine ouer all the maine battaile, with his Ansigne
and Drumme: and I haue of purpose repeated this or-
der the oftner, to the intent, that after when I shall
shew you the maners of ordering the battailes, and the
armies you should not be confounded: I say therefore
how that, that king, or that common weale, which in-
tendeth to ordeine their subiectes to armes, ought to
appoint them with these armours and weapons, and
with these partes, and to make in their countrie so ma-
ny maine battails, as it were able: & when they should
haue ordeined them, according to the foresaid distribu-
tion, minding to exercise them in the orders, it should
suffice to exercise euery battaile by it selfe: and al-
though the number of the men, of euere one of them:
cannot by it selfe, make the fashion of a iust armie, not-
withstanding, euery man may learne to do the same,
which particularly appertaineth vnto him: for that in
the armies, two orders is obserued, the one, the same
that the men ought to do in euery battaile, and the o-
ther that, which the battaile ought to do after, when it
is with y other in armie. And those men, which do wel
the first, most easily may obserue the second: But with-
out knowing the same, they canne neuer come to the
knowledge of the seconde. Then (as I haue saide) euery
one of these battailes, may by themselves, learne to
keepe the orders of the arapes, in euery quality of mo-
uing, and of place, & after learne to put themselves to-
gethers, to vnderstand the soundes, by meanes whereof
in the fight they are commaunded, to learne to know
by that, as the Gallies by the whistell, what ought to
be

Two orders
obserued in an
armie.

be done, either to stand still, or to tourne forward, or to tourne backward, or which way to tourne the weapons and the face : so that knowing how to keepe well the array after such sort, that neither place nor moving may disorder them, vnderstanding well the commaundementes of their heads, by meanes of the sounde, and knowing quickly, how to retourne into their place, these battails may after easily (as I haue said) being brought many together, learne to do that, which all the body together with the other battails in a iust armie is bound to do. And because such vniuersall practise, is also not to be esteemed a litle, ones or twise a yeare, when there is peace, all the maine battaile may be brought together, to giue it the fashion of an whole armie, some daies exercising them, as though they should fight a field, setting the front, and the sides with their succours in their places. And because a capitaine ordeineth his host to the field, either for count of the enemy he seeth, or for that, of which without seeing he doubteth, he ought to exercise the armie in the one manner, and in the other, & to instruct them in such sort, that they may know how to march, and to fight when neede should require, shewing to his soldours, how they should gouerne themselves, when they should happen to be assaulted of this or of that syde: and where he ought to instruct them how to fight against the enemy, whom they shoulde see, he must shew them also, how the fight is begun, and where they ought to retyre: being ouerthrowen, who hath to succede in their places, to what signes, to what soundes, to what voices they ought to obey, and to practise them in such wise in the battaile, and with fayned assaultes, that they may desire the very thing in deede. For that an armie is not made courageous, because in the same be hardie men, but by reason the orders thereof be well appointed: For as much as if I be one of the first fighters, and do know

How a captain must instruct his Souldiers how they ought to gouerne themselves in the battaile.

The second booke of

being overcome, where I may retire, and who hath to succede in my place, I shall alwaies fight with boldnesse, seeing my succour at hande. If I shall be one of the second fighters, the first being driven backe, and ouerthrowen, I shall not be afraid, for that I shall haue presupposed that I may be, and I shall haue desire to be the same, which may giue the victorie to my maister, and not to be any of the other. These exercises be most necessary, where an armie is made of new, and where the old army is, they be also necessary: for that it is also scene, how the Romanes knew from their infancy, the order of their armies, notwithstanding, those Capitaines before they should come to the enemy, continually did exercise them in those. And Iosephus in his history sayeth, that the continuall exercises of the Roman armie, made that all the same multitude, which follow the campe for gaine, was in the day of battaile profitable: because they all knew how to stande in the orders, and to fight keeping the same: but in the armies of new men, whether thou haue put them together, to fight straight waye, or that thou make a power to fight, when neede requires, without these exercises, as wel of the battails seuerally by themselves as of all the armie, is made nothing: wherefore the orders being necessary, it is convenient with double industry and labour, to shew them vnto such as knoweth them not, and for to teach it, many excellent Capitaines haue trauailed, without any respect.

Cosimo. He thinkes that this reasoning, hath somewhat transported you: for as much, as hauing not yet declared the wayes, with the which the battails be exercised, you haue reasoned of the whole armie, and of the day of battaile.

Fabritio. You say trueth, but surely the occasion hath bene the affection, which I beare to these orders, and the griefe that I feele, seeing they be not put in vze: not
with

withstanding, doubt not but that I will tourne to the purpose: as I haue saide, the chiefe importance that is in the exercise of the battailes, is to know how to keepe well the arraies: and because I tolde you that one of these battailes, ought to be made of foure hundred men heauie armed, I will stay my selfe vpon this number.

The chiefe importance in the exercising of bandes of men.

They ought then to be brought into lxxx. rankes, & siue to a ranke: afterward going fast, or softly, to knit them together, and to lose them: the which how it is done, may be shewed better with deedes, then with wordes.

Which needeth not greatly to be taught, for that euery man who is practised in seruice of warre, knoweth how this order proceedeth, which is good for no other, then to vse the souldiours to keepe the ray: but let vs come to put together one of these battailes, I say, that ther is giuen them thre fashions principally, the first, and the most profitablest is, to make all massiue, and to giue it the fashion of two squares, the second is, to make it square with the front horned, the third is, to make it with a boide space in the middelt: the manner to put men together in the first fashion, may be of two sortes, the one is double the rankes, that is, to make the second ranke enter into the first, the .iiii. into the third, the siue into the fift, and so forth, so that where there was lxxx. rankes, siue to a ranke, they may become xl. rankes v. to a ranke. Afterward cause them to double ones more in the same maner, setting y one ranke into an other, & so there shall remayn twentie rankes, twentie men to a ranke: this maketh two squares about, for as much as albeit that there be as many men the one way, as in the other, notwithstanding towarde the head, they ioyne together, that the one side toucheth the other: but by the other way, they be distant the one from the other, at least a yarde and a halfe, after such sorte, that the square is much longer, from the backe to the fronte.

Three principall fashions for thordering of men into battaile raie.

The maner how to bring a band of men in to battaile raie after a square fashion

then from the one side to thother: and because we haue
at

The second booke of

of this present, to speake often of the partes afore, of be-
hind, & of the sides of these battailes, and of all the ar-
me to gether, know you, that when I say either head
or front, I meane the part afore, when I shall saye
backe, the part behind, when I shall saye flankes, the
partes on the sides. The fiftie ordinary belike of the bat-
taile, must not mingle with y other rankes, but so sone
as the battaile is fashioned, they shalbe set a long by the
flankes thereof. The other way to set together the bat-
taile is this, and because it is better then the first,
I will set it before your eyes iust, how it ought to be or-
deyned. I beleue that you remember of what number
of men, of what heades it is made, and of what armours
they are armed: then the fashion, that this battaile ought
to haue, is (as I haue saide) of twentie rankes, twentie
men to a ranke, siue rankes of Pikes in the front, and
fifteene rankes of Targaettes on the backe, two Cen-
turiōs standing in the front, two behind on the backe,
who shall execute the office of those, which the antiquity
called Tergiductory. The Conestable with y Ansigne,
and with the Drumme, shall stand in the same space,
that is betwene the siue rankes of the Pikes, and the
fifteene of the Targaettes. Of the Peticapitaynes, there
shall stand one vpon euerie side of the ranckes, so that
euerie one, may haue on his side his men, those Petica-
pitaines, which shalbe on the left hand, to haue their
men on the right hand: those Peticapitaines, which
shalbe on the right hand, to haue their men on the left
hand: The fiftie Veliti, must stand a long the flankes,
and on the backe of the battaile. To minde now,
that this battaile may be set together in this fashion,
the men going ordinarlye, it is conuenient to order
them thus. Make the men to bee brought into . lxxx.
rankes, siue to a ranke, as a litle afore wee haue said,
hauing the Veliti either at the head, or at the taile,
so that they stand out of this order: and it ought to bee
ordeyned

The better
way for the or-
dering of a bād
of men in bat-
tall is this, af-
ter the first fi-
ction,

ordayned, that euerie centurion haue behind his backe
twentie rankes, and to be next behind euerie Centu-
rion, five rankes of Pikes, and the rest Targaettes.

The Conestable shall stand with the Drum, and the
ansigne, in the same space, which is between the Pikes,
and the Targaettes of the second Centurion, and to
occupie the place of three targaet men. Of the Detrap-
taines, twentie shall stand on the sides of the rankes,
of the first Centurion, on the left hand, and twentie
shall stand on the sides of the rankes, of the last Cen-
turion on the right hand. And you must vnderstand,
that the Deticaptaine, which hath to leade the Pikes,
ought to haue a Pike, & those that lead the Targaettes,
ought to haue like weapons. Then the rankes being
brought into this order, and minding in marching, to
bring them into battaile, for to make the head, the
first Centurion must be caused to stand still, with the
first twentie rankes, and the second to procede mar-
ching, and turning on the right hand, he must go to a-
long the sides of the twentie rankes that stand still, till
he come to be euen with the other Centurion, where he
must also stand still, and the third Centurion, to pro-
cede marching, likewise turning on the right hand,
and along the sides of the rankes that stand still, must
go so farre, that he be euen with the other two Centu-
rions, and he also standing still, the other Centurion
must follow with his rankes, likewise turning on the
right hand, along the sides of the rankes that stand
still, so far that he come to the head of the other, and
then to stand still, and straight waie two Centurions
onely, shall depart from the front, and go to the backe
of the battaile, the which cometh to be made in the same
maner, and with the same order iust, as a little afoze I
haue shewed you. The Melitie must stand a long, by
the flanks of the same, according as is disposed in the
first way, which way is called redoubling by right
line,

The second Booke of

line, this is called redoubling by flank: the first way is more easy, this is with better order, and cometh better to passe, and you may better correcte it, after your owne manner, for that in redoubling by right line, you must be ruled by the number, because five maketh ten, ten twentie, twentie forty, so that with redoubling by right line, you cannot make a head of fiftene, nor of five and twentie, nor of thirtie, nor of five and thirtie, but you must go where the same number will lead you.

And yet it happeneth euerie day in particular affaires, that it is conuenient to make the forward with five hundred, or eight hundred men, so that to redouble by right line, should disorder you: therefore this liketh me better: that difficultie that is, ought most with practise, and with exercise to be made easy. Therefore I say vnto you, how it importeth more then any thing, to haue the Souldiours to know how to set themselves in aray quickly, and it is necessary to keepe the in this battaile, to exercise them therein, and to make them to go apace, either forward or backward, to passe through difficult places, without troubling the order: for as much as the souldiours, which can do this well, bee experte souldiours, and although they haue neuer seene enemies in the face, they may be called olde souldiours, and contrarywise, those which can not keepe these orders, though they haue been in a thousand warres, they ought alwayes to be reputed new souldiours. This is, concerning setting them together, when they are marching in small ranks: but being set, and after being broken by some accident or chaunce, which groweth either of the situation, or of the enemy, to make that in a sodaine they may come into order againe, this is the importance and the difficultie, and where is needfull much exercise, and much practise, and wherein the antiquitie bestudied much studie. Therefore, it is necessarie to doe two things, first to haue this battaile full of counter signes,

ferignes, the other to keepe alwayes this order, that those same men may stand alwayes in the ranke, which they were first placed in: as for insample, if one haue begon to stand in the seconde, that hee stande after alway in that, & not onely in that selfe same rank, but in that selfe same place: for the obseruing whereof (as I haue sayd) be necessary many countersignes. In especially it is requisite, that the Ansigne be after such sorte countersigned, that companing with the other battels, it may be knowen from them, according as the Conestable, & the Centurions haue plumes of fethers in their heads different, and easie to be knowen, and that which importeth most, is to ordeine that the peticaptaines be knowen. Wherevnto the antiquity had so much care, that they would haue nothing els written in their head paces, but the number that they were named by, calling them first, second, third, and fourth, &c. And yet they were not contented with this, but made every soldior to haue written in his targaet, the number of the rank, and the number of the place, in which ranke hee was appointed. When the men being countersigned thus, and vled to stand betweene these limits, it is an easie thing, they being disordered, to set them all againe quickly into order: considering, that the Ansigne standing still, the Centurions, and the Peticaptaines may gesse their places by the eye, and being brought the left of the left, the right of the right, with their accustomed distance, the soldiors lead by their rule, and by the differences of the cognisances, may be quickly in their proper places, no other wise, then as if the bordes of a tunne should be taken a sunder, which being firste marked, most easily may be set together againe, where the same being not countersigned, were impossible to bring into order any more. These things with diligence and with exercise are quickly taught, and quickly learned, and being learned, with

How to exercise men, & to take such order, whereby a band of men ywer by whatsoeuer chance disorder, may straightway be brought into order againe.

The second Booke of

difficulty are forgotten : for that the new men, be lead of the olde, and with time, a prouince with these exercises, may become thoroughly practised in the warre. It is also necessary to teach them, to tourne themselves all at ones, and when neede requires, to make of the flankes, and of the backe, the front, and of the fronte, flankes, or backe, which is most easy : because it sufficeth that euery man do tourne his body, towards the same part that he is commaunded, & where they tourne their faces, there the front commeth to be. True it is, that when they tourne to any of the flankes, the orders tourne out of their proportion: for that from the breast to the backe, ther is little difference, and from the one flanke to the other, there is very much distance, & which is all contrary to the ordinarie order of the battaile : therefore it is conuenient, that practise and discretion, do place them as they ought to be : but this is sinall disorder, for that most easily by themselves, they may remedy it. But that which importeth more, and where is requisite more practise, is when a battaile would tourne all at ones, as though it were a whole body, here is meete to haue great practise, and great discretion, because mynding to tourne, as for insample on the lefte hande, the left corner must stand still, and those that be next to him that standeth still, must march so softly that they that be in the right corner, neede not to run: otherwise all thing should be confounded. But because it happeneth alwaies, when an army marcheth from place to place, that the battails, which are not placed in the fronte, shall be driuen to fight not by heade, but either by flanke, or by backe, so that a battaile must in a sodaine make of flanke, or of backe, heade : and mynding that like battailles in such case, may haue their proportion, as aboue is declared, it is necessary, that they haue the pykes on the same flanke, that ought to be head, and the Deticapitaines, Centurions

What aduersitismēt ought to be vsed in turning about a whole band of men, after such sort, as though it wer but one bodie.

centurions, and Conestables, to resort accordingly to their places. Therefore to mynd to do this, in placing them together, you must ordeine the foure score rankes, of fife in a ranke, thus: Set all the pikes in the first twentie rankes, and place the Peticapitaines thereof, fife in the first places, and fife in the last: the other thre score rankes, which come after, be all of Targaettes, which come to be thre Centuries. Therefore the first and the last ranke of euery Centurion, would be Peticapitaines, the Conestable with the Ansigne, and with the Drumme, must stand in the middelt of the first Centurie of Targaets, and the Centurions in the head of euery Centurie. The bande thus ordeined, when you would haue the pykes to come on the lefte flank: you must redouble Centurie by Centurie, on the right flank: if you would haue them to come on the right flank, you must redouble the on the left. And so this battail tourneth with the pikes vpon a flank, and the Conestable in the middelt: the which fashon it hath marching: but the enemie comming, and the tyme that it would make of flank head, it needeth not but to make euery man to tourne his face, towarde the same flank, where the pikes be: and then the battail tourneth with the rankes, and with the heads in the same manner, as is aforesaide: for that euery man in his place, except the centurions, and the centurions straight way, and without difficultie, place them selues: But when they in marching, should be driuen to fight on the back, it is conuenient to ordeine the rankes after such sort, that setting them in battaile, the pykes may come behynde, and to do this, there is to be kept no other order, then where in ordering to battaile, by the ordinarie, euery Centurie hath fife rankes of Pykes before, to cause that they may haue them behinde, and in all the other partes to obserue the order, which I declared first.

How to order a band of men after such sort that they may make their front against the enemie of which flank they list.

How a band of men ought to be ordered, when in marching they should be constrained to fight on their backs.

The second Booke of

Cosmo. You haue tolde (if I do well remember mee) that this manner of exercise, is to be able to bring these battailles together into an armie, and that this practise, serueth to be able to order themselves in the same. But if it should happen, that these 400. and 50. men, should haue to do an act seperate, how would you order them?

How a battail
is made with
two hornes.

Fabritio. He that leadeth them, ought then to iudge, where he will place the pykes, and there to put them, the which doth not repugne in any part to the order aboue written: for that also, though the same be the manner, that is obserued to fight a fiede, together with the other battailles, notwithstanding it is a rule, which serueth to all those wayes, wherein a band of men should happen to haue to do: but in shewing you the other two wayes of me propounded, of ordering the battailles, I shall also satisfie you more to your question: for that either they are neuer bled, or they are bled whe a battaile is alone, and not in company of other, and to come to the way of ordering them, with two hornes, I say, that thou oughtest to order the 80. ranks, five to a ranke, in this manner. Place in the midst one Centurion, and after him 25. ranks, which must be with two pykes on the left hand, and with three Targaets on the right, and after the first five, there must be put in the twentie following, twentie Deticaptaines, all betwene the pykes, and the targaets, except those which beare the pyke, whom may stand with the pykes: after these 25. ranks thus ordered, there is to be placed an other Centurion, and behynde him fiftene ranks of Targaettes: after these Constable betwene the Drum and the Ansigne, who also must haue after him, other fiftene ranks of targaettes, after this the third Centurion must be placed, and behynd him 25. ranks, in euery one of which, oughte to be three Targaettes on the left flank, and two pykes on the right

right, and after the five first rankes, there must be xx. Deticaptaines placed between the Pikes, and the Targaettes: after these rankes, the fourth centurion must follow. Intending therefore, of these rankes thus ordered, to make a battaile with two hornes, the first centurion must stand still, with the xxv. rankes which be behinde him, after the second centurion must moue, with the fiftene rankes of Targaetts, that be behind him, and to tourne on the right hand, and by the right flank of the xxv. rankes, to go so farre, that he arrive to the xv. ranke, and there to stand still: after, the constable must moue, with the fiftene rankes of Targaettes, which be behind him, and turning likewise on the right hand, by the right flank of the fiftene rankes, that were first moued, must march so farre, that he come to their heads, and there to stand still: after the third centurion must moue with the xxv. rankes and with the fourth centurion, which was behind, and turning by straight, must go along by the right flank of the fiftene last rankes of the targaettes, and not to stand still when he is at the heades of them, but to follow marching so farre, that the last ranke of the xxv. may come to be even with the rankes behinde. And this done, the centurion, which was head of the first fiftene rankes of Targaettes, must goe away from thence where hee stood, and go to the backe in the left corner: and thus a battaile shall be made of xxv. rankes, after twentie men to a ranke, with two hornes, upon euery side of the front one horne, and euerie one, shall haue tenne rankes, five to a ranke. and there shall remaine a space between the two hornes, as much as containeth tenne menne. which tourne their sides, y one to the other. Between the two hornes, the captaine shall stand, and on euerie point of a horne, a centurion: There shall be also behind, on euerie corner, a centurion: there shalbe two rankes
of

The second Booke of

The ordning
of a battaile
with a voide
space in the
middelt.

of Pikes, and xx. Deticaptaines on euery flanke. These two hornes, serue to keepe betwene them the artillerie, when this battaile should haue any with it, and the cariages: The Velitie must stand a long the flankes, under the Pikes. But minding to bring this horned battaile, with a void space in the middelt, there ought no other to be done, then of fiftene rankes, of twentie to a ranke, to take eight rankes, and to place them on the pointes of the two hornes, which then of hornes, become backe of the void space. In this place, the cariages are kept, the Capitaine standeth, and the Ansigne, but neuer the Artillerie, the which is placed either in the frount, or a long the flankes. These be the waies, that a battaile may vse when it is constrayned to passe alone through suspected places: notwithstanding the massiue battaile without hornes, and without any such voide place is better, yet purposing to assure the disarmed, the same horned battaile is necessarie. The Suizzers make also many fashions of battailes, among which, they make one like vnto a crosse: because in the spaces that is betwene the armes thereof, they keepe safe their Markebuters fro the daunger of the enemies: but because such battailes be good to fight by them selues, and my intent is to shew, how many battailes vnted, do fight with the enemy, I will not labour further in describing them. Cosimo. He thinke I haue bene well comprehended the way, that ought to be kept to exercise the men in these battailes: But (if I remember me well) you haue said, how that besides the ten battailes, you ioine to the maine battaile, a thousand extraordinary Pikes, and foue hundred extraordinarie Velitie: will you not appointe these to be exercised?

Fabritio. I would haue them to bee exercised, and that with most great diligence: and the Pikes I would exercise, at least ansigne after ansigne, in the orders of the battailes, as the other: For as much as these should

should do me more service, then the ordinarie battailes, in all perticular affaires: as to make guides, to get batties, and to do like thinges: but the Veliti, I would exercise at home, without bringing them together, for that their office being to fight a sunder, it is not meete, that they should companie with other, in the common exercises: for that it shall suffice, to exercise them well in the perticular exercises. They ought then (as I first told you, now now me thinkes no labour to rehearse it againe) to cause their men to exercise themselves in these battailes, whereby they may know how to keepe the raze, to know their places, to turne quickly, whē either enemy, or situatio troubleth thē: for that, whē they know how to do this, the place is after easely learned, which a battaile hath to keepe, & what is the office thereof in the armie: and when a prince, or a common weale, will take the paine, and will use their diligence in these orders, and in these exercising, it shall alwaies happen that in their countrie, there shall be good souldiours, and they to be superious to their neighbours, and shalbe those, which shall giue, and not receiue the lawes of other men: but (as I haue said) the disorder wherein they liue, maketh that they neglect, and do not esteeme these things, and therefore our armies be not good: and yet though there were either head, or member naturally vertuous, they cannot shew it.

Cosimo. What cariages would you, that every one of these battailes should haue?

Fabritio. First, I would that neither Centurion, nor Petcaptaine, should be suffered to ride: and if the constable would needes ride, I would that he should haue a Mule, and not a horse, I would allow him two cariages, and one to every Centurion, and two to euery three Petcaptaines, for that so many will lodge in a lodging, as in the place thereof we shall tell you: So that euery battaile will come to haue xxxvi.

li.

carris

To what purpose y pikes & veliti, extraordinary, must serue.

Neither Centurion nor petcaptaine ought not to ride. What cariages the Captaines ought to haue, & the number of cariages requisite to euery band of men.

The second Booke of

carriages, the which I would should carrie of necessitie the tentes, the vessels to seth meate, axes, barres of Iron sufficient to make the lodgings, and then if they can carrie any other thing, they may do it at their pleasure.

Colimo. I beleue that the heades of you, ordeyned in euerie one of these battayles, be necessary: albeit, I would doubt, least that so many commaunders, should confound all.

Fabritio. That should be, when it were not referred to one man, but referring it, they cause order, yea, and without them, it is impossible to gouerne an armie: for that a wall, which on euerie part inclineth, requireth rather to haue many proppes, & thicke, although not so strong, then few, though they were strong: because the vertue of one a loue, doth not remedie the ruine a farre of. And therefore in the armies, and among euerie tenne men, it is conuenient that there be one, of more life, of more heart, or at least wise of more authoritie, who with stomacke, with wordes, and with example, may keepe them constant, and disposed to fight, & these thinges of me declared, be necessarie in an armie, as the heads, the Ansignes, and the Drummes, is seene that we haue them all in one armies, but none doth his office. First to minde that the Peticaptaynes do the same, for which they are ordeyned, it is necessary (as I haue said) that there be difference, betwene euerie one of them and their men, and that they lodge together, doing their duties, standing in the order with them: for that they placed in their places, be a rule & a temperaunce, to maintaine the rayes straight and steeadie, and it is impossible that they disordered, or disordering doe not reduce themselves quickly into their places. But we now adays, do not vse them to other purpose, then to giue them more wages, then to other men, and to cause that they doe some particular feat: The verie same hapeneth

happeneth of the Ansigne bearers, for that they are kept rather to make a faire muster, then for any other warlike use: but the antiquitie vsed them for guides, and to bring themselues againe into order: for that euery man, so soone as the Ansigne stood still, knew the place, that he kept nere to his Ansigne, wherunto he returned alwayes: they knew also, how that the same moving or standing, they should stay or moue: therefore it is necessary in an armie, that there be many bodiees, & euery band of men to haue his Ansigne; and his guide: wherefore hauing this, it is mete that they haue shoomakes enough, and by consequence life enough. Then the men ought to march according to the Ansigne: and the Ansigne to moue according to the Drumme, the which Drum wel ordered, commaundeth to the armie, the which going with paces, that answereth the time of the same, wil come to keepe easily the orders: for which cause the antiquity had Schalmes, flutes, and soundes perfectly timed: for as much as like as he that dances, proceedeth with the time of the Musicke, and going with the same doth not erre, euen so an armie obeying in moving it selfe to the same sound, doth not disorder: and therefore they varied the sounde, according as they would varie the motion, and according as they would inflame, or quiet, or staye the myndes of men: and lyke as the sound were diuers, so diuersly they named them: the sound Doxico, ingendered constancie, the sounde Frigio, furie: whereby they say, that Alexander being at the table, and one sounding the sounde Frigio, it kindled so much his mynd, that he layed hand on his weapons. All these manners should be necessary to finde againe: and when this should be difficult, at least there would not be left behinde those that teach the Souldiour to obey, the which euery man may vary, and ordayne after his owne fashion, so that with practise, hee accustome the eares of his Souldiours

To what purpose Ansignes ought to serue

For what purpose Drummers ought to be vsed.

The properie that sounds of instruments haue in mens mindes.

The second Booke of

diours to know it : But now a dayes of this sound there is no other fruite taken for the most part, then to make a rumour.

Cosimo. I would desyre to vnderstand of you, if euer with your selfe you haue discovered, whereof groweth so much vilenesse, and so much disorder, and so much negligence in these dayes of this exercise?

A notable discourse of the author declaring whereof groweth so much vilenesse disorder, and negligence in these daies, concerning the exercises of warre.

Fabritio. With a good will I will tell you the same that I thinke. You know that of the excellent men of warre, there hath bene named many in Europe, few in Affric, and lesse in Asia: this grew for that these two last partes of the world, haue had not past one kingdom or two, and few common weales but Europe onely, hath had many kingdoms, and infinite common weales, where men became excellent, and did shewe their vertue, according as they were set a-woyke, and brought before their Prince, or common weale, or King that he be: it followeth therefore, that where be many dominions, there rise many valiant men, and where be few, fewe. In Asia is found Ninus, Cirus, Artaxerxes, Mithredates: and very few other, that to these may be compared. In Affrick, is named (letting stand the same auncient Egypt) Masinissa, Iugurta, and those capitaines, which of the Carthaginens common weale were nourished, whom also in respecte to those of Europe are most few: because in Europe bee excellent men without number, and so many more should be, if together with those should bee named the other, that be through the malignity of tyme extinct: for that the world hath bene most vertuous, where hath bene most states, which haue fauoured vertue of necessitie, or for other humane passion. Where rose therefore in Asia few excellent men: because the same prouince was all vnder one kingdom, in the which for the greatnesse thereof, the same standing for the most part of time idle, there could not grow men in

do,

doings excellent. To Affricke there happened the very same, yet there were nourished moze then in Asia, by reason of the Carthaginens commonweale: for that in common weales, there grow moze excellent men, then in kingdomes: because in common weales for the most part, vertue is honoured, in kingdomes it is held backe: whereby groweth, that in the one, vertuous men are nourished, in the other they are extinte. Therefore he that shall consider the partes of Europe, shall finde it to haue bene full of common weales, and of pryncedomes, the which for feare that the one had of the other, they were constrained to kepe liuely the warlike orders, and to honour them, which in those most preuailed: for that in Greece, besides the kingdom of the Macedonians, there were many common weales, & in euery of them were bred most excellent men. In Italie, were the Romans, the Samnites, the Toscanes, the Gallie Cisalpini. Fraunce, and Almaine, were full of common weales and pryncedomes. Spaine likewise: and although in comparison of the Romanes, there are named few other, it groweth through the malignity of the writers whom follow fortune, and to them for the most part it sufficed to honour the conquerours: but it standeth not with reason, that betwene the Samnites, and the Toscanes, whom fought 150. yeares with the Roman people, before they were ouercome, there should not grow exceeding many excellent men. And so likewise in Fraunce, and in Spayne: but that vertue which the writers did not celebrate in paticuler men, they celebrated generally in the people, where they exalte to the Starres, the obstinatnesse that was in them, to defende their liberty. Being then true, that where be most dominions, there riseth most valiaunt men, it followeth of necessite, that extinguishing those, vertue is extinct straight way, the occasion decaying, which maketh men vertuous. Therefore, the Ro-

The second booke of

mane Emperre being after increased, and hauing exting-
quished all the common weales, and Princedomes of
Europe, and of Affricke, and for the most part those of
Asia, it left not any way to vertue, except Rome:
whereby grew, that veruous men began to be as few
in Europe as in Asia: the which vertue came after to
the last cast: for as much as all the vertue beyng re-
duced to Rome, so soon as the same was corrupted, al-
most all the world came to be corrupted: & the Scythi-
an people, were able to come to spoile the same Empire,
the which had extingquished the vertue of other, & knew
not how to maintaine their owne: and after, although
through the inundation of those barbarous nations, the
same Empire was deuided into many partes, this ver-
tue is not renewed: The one cause is, for that it greueneth
them much, to take agayne the orders when they are
marde, the other, because the maner of liuing now a-
dayes hauing respect to the Christian Religion, com-
maundeth not the same necessity to men, to defende
themselues, which in olde tyme was, for that then,
the men ouercome in warre, either were killed, or
remayned perpetuall slaues, where they led their liues
most miserably: The towncs ouercome, either were
raied, or the inhabitants thereof diuyn out, their goods
taken away, sent disperfed through the world: so that
the vanquisher in warre, suffered all extreme misery:
of this feare, men being made afrayde, they were
diuyn to keepe liuely the warlike exercises, and they
honoured such as were excellent in them: But now a-
dayes, this feare for the most part is not regarded of
those that are ouercome, few be killed, none is kepte
long in prison: for that with facilitie, they are set at li-
bertie: the cities also, which a thousand times haue re-
belled, are not destroyed, the men whercof, are let alone
with their goods, so that the greatest hurt that is feared,
is but a taske: in so much, that men will not submit
them

The causes
why the an-
cient orders
are neglected

themselves to the orders of warre, & to abide allwaies under those, to avoid the perills whereof they are litle afraied: againe these Prövinces of Europe, be under a verie fewe heades, in respect as it hath bene in times past: for that all Fraunce, obeith one king, all Spaine, an other: Italie is a few partes, so that the weake Cities, are defended with leaning to him that overcometh, and the strong states, for the causes aforesayde, feare no such extrême ruine.

Cosimo. Yet there hath bene sene many towncs that haue bene sacked within this xlv. yeres, and lost their dominions, whose insample, ought to teach other how to liue, and to take again some of those olde orders.

Fabritio. You say true: but if you note what towncs haue gone to sacke, you shall not finde that they haue bene the heades of states, but of the members: as was sene sacked Torton, and not Milaine: Capua, and not Naples, Brescia, & not Venice, Rauenna, & not Rome: the which ensamples maketh those that gouerne, not to chaunge their purposes, but rather maketh them to stand more in their opinion, to bee able to redeme again all thinges with taskes, and for this, they wil not submit themselves to the troubles of the exercises of warre, seeming unto them partly not necessary, partly an intricate matter, which they vnderstand not: Those other, which be subiects to them, whom such ensamples ought to make afraied, haue no power to remedy it: and those Princes, that haue ones lost their states, are no more able, & those which as yet keepe the, know not, nor will not. Because they will without any disease rain by fortune, & not by their vertue, for y in the word being but litle vertue, they see fortune gouerneth all things. And they will haue it to rule the, not they to rule it. And to proue this y I haue discoursed to be true, consider Almanie, in the which, because there is many Princedomes, and common weales, there is much
vertue

The second booke of

vertue, and all the same, which in the present service of warre is good, dependeth if the ensamples of those people, who being all gelious of their states, fearing seruitude, the which in other places not feared, they all maintaine themselves Lordes, and honourable: this that I haue said, shall suffice to shew the occasions of the present vtilitie, according to my opinion: I cannot tell whether it seme the same vnto you, or whether there be growen in you any doubting.

Cosimo. None, but rather I vnderstand all very well: onely I desire turning to our principall matter, to vnderstand of you, how you would ordyne the horse with these battailes, and how many, and how they should be gouerned, and how armed.

Fabritio. You thinke paraduenture, that I haue left it behind: whereat do not maruaile, for that I purpose for two causes, to speake thereof litle, the one is, for that the strength, and the importaunce of an armie, is the footemen, the other is, because this part of service of warre, is lesse corrupted then the same of footemen. For that though it be not stronger then the olde, yet it may compare with the same, neuertheless there hath been spoken a litle afore, of the maner of exercising the.

The arming
of horsemen.

The weapons
that light horse-
men should
haue.

The number
of horsemen
requisite a
maine battaile
of sixe thou-
sand men.

And concerning the arming them, I would arme them as they do at this present, as well the light horsemen, as the men of armes: but the light horsemen, I would that they should be all Crossebowe shooters, with some Warkebuters among them: the which though in the other affaires of warre, they be litle profitable, they be for this most profitable, to make afraied the countrymen, & to drine them from a passage, that were kept of them: because a Warkebutter shall feare them more then. xx. other armed. But coming to the number, I say, that hauing taken in hand, to imitate the service of warre of the Romanes, I would not ordeine more then. 3. hundred horse, profitable for every maine battel, of which I

would

would that there were. C. L. men of armes, and C. L. light horsemen, and I would giue to euerie one of these partes, a head, making after among them fiftene peticaptaines for a band, giuing to euerie one of them a Trompet and a standard: I would that euerie ten men of armes, should haue fiue carriages, and euerie tenne light horsemen two, the which as those of the footemen, should carrie the tentes, the bestells, and the arcs, and the stakes, and the rest of their other harnesse. For beleeue not but that it is disorder, where the men of armes haue to their seruice foure horse, because such a thing is a corrupt vse: for that the men of armes in Almane, are scene to be with their horse alone, euerie twentie of the hauing onely a carte, that carrieth after them their necessary thinges. The Romane horsemen, were likewise alone: true it is, that the Triarii lodged nere them which were bound to minister helpe vnto them, in the keeping of their horses: the which may easly be imitated of vs, as in the distributing of the lodgings, I shall shew you, the same then that the Romanes did, & that which the Dutchmen doe now adaiies, we may doe also, yea, not doing it, we erre. These horses ordayned & appointed together with a maine battaile, may sometimes be put together, when the battailes be assembled, and to cause that betwene them be made some sight of assault, the which should be more to make them acquainted together, then for any other necessitie. But now of this part, there hath bene spoken sufficiently, wherefore let vs fashion the armie, to be able to come into the field against the enemye, and hope to winne it: which thing is the ende, for which the exercise of warre is ordayned, and so much studie therein bestowed.

The number of cariages & men of armes & light horsemen ought to haue.

The third booke of the arte of warre,

of Nicholas Machiavel, Citizen and Secretarie
of Florence, vnto Laurence
Philip Sforze.

(.)

Cosimo.



Seeing that wee chaunge reason-
ing, I will that the demaunder
be chaunged: because I would
not be thought presumptuous, the
which I haue alwaies blamed in
other: therefore, I resigne the
Dictatorship, and giue this autho-
ritie to him that will haue it, of
these my other friends.

Zanoby. Wee would be most glad, that you should
proceede, but seeing that you will not, yet tell at least,
which of vs shall succede in your place.

Cosimo. I will giue this charge to signor Fabrizio.

Fabritio. I am content to take it, and I will that we
follow the Venecian custome, that is, that the youngest
speake first, because this being an exercise for young
menne, I perswade my selfe, that young menne, be
most apt to reason thereof, as they be most ready to exe-
cute it.

Cosimo. When it falleth to you Luigi: and as I haue
pleasure of such a successour, so you shall satisfie your
selfe of such a demaunder: therefore I pray you,
let vs tourne to the matter, and let vs leese no more
time.

Fabritio. I am certaine, that to minde to shewe
well, how an armie is prepared, to fight a fiede, it
should be necessarie to declare, how the Grekes, and
the Romanes ordeyned the bandes of their armies:

Notwith

withstanding, you your selues being able to reade, and to consider these thinges, by meanes of the auncient writers, I will passe ouer many particulars: and I will onely bring in those thinges, which I thinke necessary to imitate, minding at this time, to giue to our exercise of warre, some part of perfection: The which shall make that in one instant I shall shew you, how an armie is prepared to the field, and how it doth encounter in y^e verie fight, and how it may be exercised in the fained. The greatest disorder, that they make which ordeine an armie to the field, is in giuing them onely one front, and to bind them to one brunt and to one fortune: the which groweth of hauing lost the way, that the antiquity vsed to receiue one band within an other, because without this way, they can neither succour the foremost, nor defend them, nor succede in the fight in their Steele: the which of y^e Romanes, was most excellently well obserued. Therefore purposing to shew this way, I say, how that the Romanes, deuided into three partes euery Legion, in Hastati, Principi, and Triarii, of which the Hastati were placed in the first front, or foremost of the armie, with the orders thicke and sure, behynd whom were the Principi, but placed with their orders more thinne: after these, they set the Triarii, and with so much thinnesse of orders, that they might, if neede were, receiue betwene them the Principi, and the Hastati. They had besides these, the Slingers, and Crossebowshooters, & the other light armed, the which stode not in these orders, but they placed the in the heap of the armie, betwene the horses and the other bandes of souldiers: therefore these light armed, began the fight, if they ouercame (which happened sel-dome times) they followed the victory: if they were repulced, they retired by the flanks of the armie, or by the spaces ordained for such purposes, and they brought themselves among the unarmed: after the departure of

The greatest disorder that is vsed now a daies in pitching of a field.

The order how a Roman Legion was appointed to fight.

The third Booke of

whom, the Hastati incountered with the enemy, the which if they saw themselves to be overcome, they retired by a litle, and litle, by the rarenes of the orders betwene the Principi, and together with those they renewed the fight: if these also were repulced, they retired all in the rarenes of the orders of the Triarii, & altogether on a heape began againe the fight: and then if they were overcome, there was no more remedy, because there remained no more wayes to renewe them againe. The horses stode on the corners of the armie, to the likenesse of two wings to a body, & some whiles, they fought with y^e enemies horses, an other while they rescued the footmen, according as neede required. This way of renewing themselves three times, is almost impossible to overcome: for that fortune must three times forsake thee, & the enemy to haue so much strength, y^e three tymes he may overcome thee. The Grekes had not in their Falangi, this manner of renewing themselves, and although in those were many heads, & many orders, notwithstanding, they made one body, or els one head: the manner that they kept in rescuing the one the other, was not to retire the one order within the other, as the Romanes, but to enter the one man into the place of the other: the which they did in this maner. Their Falangi brought into ranks, & admit that they put in a ranke fiftie men comming after with their head against the enemy, of all the ranks the foremost sixe, mighte fight: Because their Launces, the which they called Sarisse, were so long, that the sixte ranke passed with the head of their Launces, out the first ranke: then in fighting, if any of the first, either through death, or through woundes fell, straight way they entered into his place, the same man, that was behynd in the second ranke, and in the place that remained voyde if the second, the same man entred, which was behinde him in the thirde, and thus successiuelly, in a sodayne: th

The maner y^e
the Grekes
vsed in their
Falangi, when
they fought
against their
enimies.

the rankes behinde, restored the faultes of those afoze,
so that the rankes alwayes remained whole, and no
place of the fighters was boide, except the last rankes,
the which came to consume, hauing not men behynde
their backes, whom might restore them: So that the
hurt that the first rankes suffered, consumed the last,
and the first remained alwayes whole: and thus these
Falangi by their order, might soner be consumed, then
broken, for that the grosse body, made it more inui-
ueable. The Romanes vsed at the beginning the Fa-
laugi: & did set in order their Legions lyke vnto them:
after, this order pleased them not, and they deuided the
Legions into many bodies, that is, in bandes and com-
panies: Because they iudged (as a little afoze I said)
that the same bodie, should haue neede of many Capi-
taynes, and that it should be made of sundry partes,
so that euery one by it selfe, might be gouerned. The
maine battayles of the Swizzers, vse at this present, all
the maners of the Falangi, as well in ordering it grosse,
and whole, as in rescuing the one the other: and in pit-
ching the field, they set the mayne battailes, the one
to the sides of the other: and though they set them the
one behind the other, they haue no way, that y first reti-
ring it selfe, may be receiued of the second, but they vse
this order, to the intent to be able to succour the one y
other, wher they put a mayne battaile befoze, & another
behind the same on the right hand: so that if the first
haue neede of helpe, that then the other may make for-
ward, & succour it: the third maine battail, they put be-
hinde these, but distant from them, a Parkebus shot:
this they do, for that the said two maine battailes being
repulced, this may make forward, and haue space for the
selues, & for the repulced, & the same that marcheth fore-
ward, to auoyd the iustling of the one the other: for as
much as a grosse multitude, cannot be receiued as a li-
tle body: and therefore, the litle bodies being distinct

The order y
the Swizzers
vse in their
main battails
whē they fight

The third Booke of

which were in a Romane Legion, might be placed in such wise, that they might receiue betwene them and rescue the one the other. And to procure this order of the Swizzers not to be so good, as the auncient Romanes, many ensamples of the Romane Legions do declare, when they fought with the Greekes *Salangi*, where alwayes they were consumed of them: for that the kinde of their weapons (as I haue said afore) and this way of renuing themselves, could do more, then the inefficacienesse of the *Salangi*. Having therfore with these ensamples to ordaine an armie, I haue thought good partly to retaine the maner of arming & the orders of the Greeces *Salangi*, and partly of the Romane Legions, and therfore I haue sayde, that I would haue in a maine battaile, two thousand pikes, which be the weapons of the Macedonick *Salangi*: and three thousand *Targaets* with swords, which be the Romane weapons: I haue deuised the maine battaile into x. battailes, as the Romanes their Legions: into x. Cohortes: I haue ordered the *Teliti*, that is y^e light armed to begin the fight, as the Romanes vsed: and like as the weapons being mingled, do participate of thone and of the other nation, so the orders also do participate: I haue ordainned that euery battaile shall haue v. rankes of *Pikes* in the front, and the rest of *Targaets*, to be able with the front, to withstand the horses, and to enter easily into the battaile of the enemies on foote, hauing in the first front, or vaward, *Pikes*, as well as the enemy, the which shall suffice me to withstand them, the *Targaettes* after to ouercome them. And if you note the vertue of this order, you shall see all these weapons, to do fully their office, for that the pikes be profitable against the horses, & when they come against the footemen, they do their office well, before the fight throung together, because so sone as they presse together, they become vnprofitable: wherefore the
Swizzers

How to appoint a main battaile with armour and weapons, and to order the same after the Greeke & Roman maner.

Switzers to auoid this inconuenience, put after euery three rankes of Pikes, a ranke of Halberdes, the which they do to make roome to the Pikes, which is not yet so much as sufficeth. Then putting our Pikes afoze, and the Targaettes behinde, they come to withstand the horses, and in the beginning of the fight, they open the rapes, and molest the footemen: But when the fight is thrust together, and that they become vnprofitable, the Targaets and swordes succede, which may in euery narrow place be handled.

Luigi. Wee looke now with desire to vnderstand, how you would ordeyne the armie to fight the fildes, with these weapons, and with these order.

Fabritio. And I will not now shew you other, then this: you haue to vnderstand, how that in an ordinarie Romane armie, which they call a Consull armie, there were no more, then two Legions of Romane Citizens which were sixe hundred horse, and about alieuen thousand footemen: they had besides as many more footemen and horsemen, which were sent them from their friends & consideraters, whom they diuided into two parts, and called the one, the right horne, & the other the left horne: nor they neuer permitted, that these aiding footemen, should passe the number of the footemen of their Legions, they were well contented, that the number of those horse should be more then theirs: with this armie, which was of xxii. thousand footemen, & about two thousand good horse, a Consul executed all affaires, and went to all enterprizes: yet when it was needefull to set against a greater force, two Consulles ioyned together with two armies. You ought also to note in especially, that in al the three principall actes, which an armie doth, that is, to march, to incampe, and to fight, the Romanes vsed to put their Legions in the middelt, so that they would, that the same power, wherein they most trusted, should be most vnited, as in the reasoning of

The number of men y was in a Consulls armie.

How the Romans placed their Legions in the field.

these

The third Booke of

these three actes, shall be shewed you : those aiding foete men , through the practise they had with the Legion Souldiours, were as profitable as they , because they were instructed, according as the Souldiours of the Legions were, and therefore, in like maner in pitching the field, they pitched . Then he that knoweth how the Romanes disposed a Legion in their armie, to fight a field, knoweth how they disposed all : therefore , hauing told you how they deuided a Legion into three bandes , and how the one band receiued the other, I haue then told you, how all tharmie in a field, was ordained . Wherefore, I minding to ordain a field like vnto y Romanes, as they had two Legions , I will take .ii. main battailes , & these being disposed, the disposition of all an armie shall be vnderstood thereby : bicause in ioyning more men, there is no other to be done , then to ingrosse the orders: I thinke I neede not to rehearse how many men a maine battaile hath, & how it hath ten battailes, and what heades bee in a battaile , and what weapons they haue, and which be the ordinarie Pikes and Velitie, and which the extraordinary, for that a litle afoze I told you it distynally, and I willed you to keepe it in memorie as a necessarie thing to purpose , to vnderstand all the other orders : and therefore I will come to the demonstration of the order, without repating it any more: He thinks good, that the ten battailes of one main battaile be set one the left flank, and the tenne other , of the other main battaile, on the right : these that are placed on the left flank, be ordained in this maner , there is put five battailes the one to the side of the other in the front, after such sorte , that betwene the one and the other , there remaine a space of three yardes , which come to occupie for largenelle . C.vi. yardes , of ground, and for length thirtie : behind these five battailes , I would put three other distant by right line from the first , thirtie yardes : two of the which , should come behind

How to order
an armie in y
field to fight a
battaile, ac-
cording to the
minde of the
author.

behind by right line, to the vttermoſt of the ſiue , and the other ſhould keepe the ſpace in the middeſt , and ſo theſe three , ſhall come to occupie ſoꝝ breadth and length, as much ſpace, as the ſiue doth. But where the ſiue haue betwene the one , and the other , a diſtaunce of three yardeſ, theſe ſhall haue a diſtaunce of xxx. yardeſ . After theſe, I would place the two laſt battailes , in like manner behind the three by right line , and diſtaunt from thoſe three , thirtie yardeſ , and I would place eche of them, behinde the vttermoſt part of the three, ſo that the ſpace, which ſhould remaine betwene the one and the other, ſhould be lxiii. yardeſ : then all theſe battailes thus ordered , will take in breadth C.vi. yardeſ, and in length C.L . The extraordinary Pikes, I would deſtende a long the ſlanckes of theſe battailes, on the left ſide, diſtaunt from them fiftene yardeſ, making C.liii. rankeſ, vii. to a ranke, after ſuch ſoꝝt, that they may impale with their length, all the left ſide of the ten battails in the ſame wiſe, declared of me to be ordained: & there ſhall remaine fourtie rankeſ to keepe the carriages, and the vnarmed, which ought to remaine in the taile of the armie, diſtributing the Deticaptaineſ , and the Centurions , in their placeſ : and of the three Conſtableſ, I would place one in the head, the other in the middeſt, the third in the laſt ranke, the which ſhould execute the office of a Vergiductore , whome the antiquitie ſo called him , that was appointed to the backe of the armie. But returning to the head of the armie , I ſay how that I would place neere to the extraordinary Pikes, the Tieliti extraordinary , which you know to be ſiue hundred , and I would giue them a ſpace of xxx. yardeſ : on the ſide of theſe likewise on the left hande, I would place the men of armes , and I would they ſhould haue a ſpace of a C.xii. yardeſ: after theſe, the light horſemen , to whom I would appointe as much ground to ſtand in , as the men of armes haue: the or-

How the extraordinary Pikes be placed in the ſecond battaile.

The place where the extraordinary archers & har-kabutterſ, and y men of armes & light horſemen ought to ſtand whe the field is pitched, and goeth to fight y battaile.

The third Booke of

The ordinarie archers & har-
kabutters are
placed about
their own bat-
tailes.

The place
where the ge-
nerall head of
a main battaill
must stand whe
y same power
of men is ap-
pointed to
fight.

What men a
generall Cap-
tain of a main
battaile ought
to haue about
him.

The place
where a gene-
rall captain of
all the armie
must stand whe
the battaile is
readie to be
fought, and
what number
of chosen men
ought to be a-
bout him.

dinarie Tieliti, I would leaue about their owne bat-
tailes, who should stand in those spaces, which I ap-
point betwene the one battaile and the other: whome
should be as their ministers, if sometime I thought not
good to place them vnder the extraordinary Pikes: in
doing or not doing whereof, I would proceede, according
as should tourne best to my purpose. The generall head
of all the maine battaile, I would place in y same space
that wer betwene the first and the second order of the
battailes, or else in the head, and in the same space, that
is betwene the last battaile of the first fise, and the ex-
traordinary Pikes, according as best should serue my
purpose, with thirtie or fourtie chosen men about him,
that knewe by prudence, how to execute a commis-
sion, and by force, to withstand a violence, and they
to be also betwene the Drumme and the Ansigne: this
is the order with the which I would dispose a maine bat-
taile, which should be the disposing of halfe the armie,
and it should take in breadth three hundred fourescore &
two yardes, and in length as much as aboue is said,
not accounting the space that the same part of the ex-
traordinarie Pikes will take, which must make a de-
fence for the vnarmed, which will be about .lxxv. yardes:
the other maine battaile, I would dispose on the right
side, after the same maner iust, as I haue disposed that
on the left, leauing betwene the one maine battaile &
the other, a space of .xxii. yardes, in the head of which
space, I would set some little cariages of artillerie, be-
hind the which, should stand the generall captaine of
all the armie, & should haue about him with the Trum-
pet, and with the Capitaine standerde, two hundred
men at the least, chosen to be on foote the most part,
amongst which there should be tenne or more, meete
to execute all commaundementes, and should be in
such wise on horsebacke and armed, that they might
be on horsebacke, and on foote, according as neede
should

should require. The artillerie of the armie suffiseth r. Cannons, for the winning of Townes, whose shotte should not passe fiftie pounce: the which in the fiede should serue me moze for defence of the campe, then for to fight the battaile: The other artillerie, should be rather of ten, then of fiftene pounce the shotte: this I would place afoze on the front of al the armie, if sometime the countrie should not stande in such wise, that I might place it by the flank in a sure place, where it might not of the enemy be in daunger: this fashion of an armie thus ordered, may in fighting vse the order of the fhalangi, and the order of the Romane Legions: for that in the front, be pikes, all the men be set in the rankes, after such sort, that incountering with the enemy, and withstanding him, may after the vse of the fhalangi, restore the first rankes, with those behinde: on the other part, if they be charged so sore, that they be constrained to breake the orders, and to retire themselves, they may enter into the voide places of the second battailes, which they haue behynde them, & vnite their selues with them, and making a new force, withstand the enemy, and ouercome him: and when this sufficeth not, they may in the very same maner, retire themselves the second time, and the third fight: so that in this order, concerning to fight, ther is to renewe themselves, both according to the Greeke maner, and according to the Romane: concerning the strength of the armie, there cannot be ordained a moze stronger: for as much as the one & the other horne therof, is exceedingly well replenished, both with heades and weapons, nor there remaineth weake, other then the part behinde of the vnarmed, & the same also, hath the flankes impaled with the extraordinary pikes: nor the enemy can not of any part assault it, where he shall not finde it well appointed, and the hinder part cannot be assaulted: Because there cannot bee an enemy, that hath so

How many Canons is requisite for an armie, and of what size they ought to be. When the artillerie ought to be placed where tharmy is redie to fight.

An armie that were ordered as aboue is declared, may in fighting, vse y Grekes maner & the Roman fashion.

The third Booke of

much puissaunce, whom equally may assault thee on euery hyde: for that hee hauing so great a power, thou oughtest not then to match thy selfe in the fildes, with him: but when he were three times more then thou, and as well appointed as thou, hee doth weaken himselfe in assaulting thee in diuers places, one part y^e thou breakest, will cause all the rest goe to naught: concerning horses, although he chance to haue more then thyne, thou needest not feare: for that the orders of the pikes, which impale thee, defend thee from all violence of them, although thy horses were repulced. The heades besydes this, be disposed in such place, that they may easily commaund, and obey: the spaces that be betwene the one battaile, and the other, and betwene the one order, and the other, not onely serue to be able to receiue the one the other, but also to giue place to y^e messengers, which should goe and come by order of the Captaine. And as I told you first, how the Romanes had for an armie, about foure and twentie thousand men, euen so this ought to be: and as the other souldiours toke ensample of the Legions, for the maner of fighting, and the fashion of the armie, so those souldiours, which you should ioyne to our two maine battailes, ought to take the forme and order of them: wherof hauing put you an insample, it is an easie matter to imitate it, for that increasing, either two other mayne battailes vnto the armie, or as many other soldiours as they be, there is no other to be done, then to double the orders, and where was put tenne battailes on the left part, to put twentie, either ingrossing or distending the orders, according as the place, or the enemye should compell thee.

Lungi. Surely sir I imagine in such wise of this armie, that mee thinkes now I see it, and I burne with a desire to see it incounter, and I would for nothing in the world, that you should become Fabius Maximus,
intenc

To what purpose the spaces that be betwene euery band of men doe serue.

intending to keepe the enimie at a baye, and to deferre the day of battaile : because I would say worse of you, then the Romane people sayd of him.

Fabritio. Doubt not : do you not heare the artillery? Durs haue already shot, but litle hurt the enimie : and the extraordinarye Ueliti, issuing out of their places together with the lighte horsemen, most speedely and with most meruailous furie, and greatest crye that may be, they assault the enimie : whose artillirie hath discharged ones, and hath passed ouer the heads of our footmen, without doing them any hurt, and because it cannot shote the second tyme, the Ueliti, and our horsemen haue now gotten it, and the enemies for to defend it, are come forward, so that neither our ordinaunce, nor the enemies, can any more do their office. See with how much vertue, strength, and agilitie our men fighteth, and with how much knowledge through the exercise, which hath made them to abyde, and by the confidence, that they haue in the armie, the which, see, how with the pace thereof, and with the men of armes on the sides, it marcheth in good order, to giue the charge on the aduersarie : See our artillery, which to giue them place, and to leaue them the space free, is retired by the same space, from whence the Ueliti issued : See how the captaine encourageth them, sheweth them the victorie certaine : See how the Uelitie & light horsemen bee enlarged and returned on the flanks of the armie, to seeke and view, if they may by the flanke, do any iniury to the aduersaries : behold how the armies be affronted. See with how much valiantnes they haue withstode the violence of the enemies, and with how much silence, and how the Captaine commaundeth the men of armes, y they sustaine, & not charge, & that they breake not from the order of the footmen: See how our light horsemen be gone to giue the charge on a band of y enemies, Harkebutters, which would haue hurte our

The description of a battail that is a fighting.

The third booke of

men by flanke, and how the enemies horse haue succoured them, so that tourned betwene the one & the other horse, they cannot shote, but are faine to retire behinde their owne battaile: see with what furie our Pikes do also affront, and how the footemen bee now so nere together the one to the other, that the Pikes can no more be occupied: so that according to the knowledge, learned of vs, our pikes doe retire a litle & a litle betwene the targets. See how in this while a great band of men of armes of the enemies, haue charged our men of armes on the left side, and how ours, according to knowledge bee retired vnder the extraordinary pikes, and with the helpe of those giuing againe a fresh charge, haue repulced the aduersaries, & slaine a good part of them: in so much, that the ordinary pikes of the first battailes, bee hidden betwene the raies of the Targaets, they hauing left the fight to the Targaet men: whom you may see, with how much vertue, securitie, & leasure, they kill the enemy: see you not how much by fighting, the orders bee thrust together? That they can scarce wield their swords. Behold with how much fury the enemies moue: because being armed with the pike, and with the sword vnprofitable (the one for being too long, the other for finding the enemy too well armed) in part they fall hurt or dead, in part they flie. See they flie on the right corner, they flie also on the left: behold, the victorie is ours. Haue not wee wonne a fiede most happily? But with more happinesse it should bee wonne, if it were graunted me to put in acte. And see, how there needed not the helpe of the second, nor of the third order for our first front hath sufficed to ouercome them: in this part, I haue no other to say vnto you, then to resolute if any doubt be growen you.

Luigi. You haue with so much furie wonne this fiede, that I so muche maruaile and am so astonied, that I beleue that I am not able to expresse, if any doubt

doubt remaine in my minde : yet trusting in your prudence, I will be so bold to tell the same that I vnderstand. Tell me first, why made you not your ordinance to shote more then ones ? And why straight way you made them to retire into the armie, noz after made no mention of them: wee thought also, that you leueled the artillery of the ennemie high, and appointed it after your owne deuise : the which might very well be, yet when it should happen, as I beleue it chaunceth often, that they strike the rankes, what remedy haue you: And seeing that I haue begun of the artillerie, I will finish all this question, to the intent I neede not to reason thereof any more. I haue heard many dispraise the armours and the orders of the auncient armies, arguing, how now adayes, they can do litle, but rather should bee altogether vnprofitable, hauing respect to the furie of the artillerie: because, this breaketh the orders, and passeth the armours in such wise, that it seemeth vnto them a foolishnesse to make an order, which cannot be kepte, and to take paine to beare harneis, that cannot defend a man. Fabritio. This question of yours (because it hath many heades) hath neede of a long aunswere. It is true, that I made not the artillerie to shote more then ones, and also for the same ones, I stood in doubt: the occasion was, for as much as it importeth more, for once to take heede not to be strikē, then it importeth to strike the ennemie. You haue to vnderstand, that to purpose that a peece of ordinaunce hurt you not, it is necessary either to stand where it can not reach you, or to get behinde a wall, or behinde a banke: other thing there is not that can withhold it: and it is needfull also, that the one and the other be most strong. Those Captaines which come to fight a field, cannot stande behind a wall, or behinde bankes, noz where they may not be reached: therefore it is meete for them, seeing they cannot finde away to defend them, to finde some meane,

Questions
concerning the
shooting of ordi-
nance.

An answer to
the questions
that were de-
maunded, con-
cerning shoo-
ting the ordi-
nance.

The third booke of

by the which they may be least hurte : no; they can not finde any other way, then to preuent it quickly, the way to preuent it, is to goe to finde it out of hand, and hastily not at leasure and in a heape: for that through speede, the blow is not suffered to be redoubled, and by the thinnesse, lesse number of menne may be hurt. This, a band of men ordered, can not do: because if the same march hastily, it groweth out of order: if it go scattered the enemy shall haue no paine to breake it, for that it breaketh by it selfe: and therefore, I ordered the armie after such sort, that it might doe the one thing and the other: for as much as hauing set in the corners thereof, a thousand Aliti, I appointed that after that our ordinance had shotte, they should issue out together with the light horsemen, to get the enemies artillerie: and therefore, I made not my ordinance to shot againe, to the intente, to giue no time to the enemy to shote: Because space could not be giuen to mee, and taken from other men, and for the same occasion, where I made my ordinance not to shote the second time, was for that I would not haue suffered the enemy to haue shotte at all, if I had could: seeing that to minde that to the enemies artillerie be vnprofitable, ther is no other remedy, but to assault it speedly: for as much as if the enemies forsake it, thou takest it, if they will defend it, it is requisite that they leaue it behind, so that being possessed of enemies, & of friends, it cannot shote. I would beleene, y without insamples these reasons should suffice you, yet being able to shew old ensamples, to proue my sayings true, I will. Ventidio comming to fighte a field with the Parthians, whose strength for the most part, consisted in bowes and arrowes, he suffered them almost to come hard to his campe, before he drew out his armie, the which onely he did, to be able quickly to preuent them: and not to giue them space to shote. Cesar when he was in Fraunce, maketh mencion, that

The best remedy to auoid the hurt y the enemy in the field may doe with his ordinance.

A policie against bowes and darts.

that in fighting a battaile with the enemies, hee was with so much furie assaulted of them, that his men had no time to whoyle their dartes, according to the custome of the Romanes: wherefore it is sene, that to intend, that a thing that shooteth farre of, being in the field, do not hurt thee, there is no other remedy, then with as much celeritie as may be, to preuent it. An other cause moued me to procede, without shooting the ordinaunce, whereat peradventure you will laugh: yet I iudge not that it is to be dispraised. There is nothing that causeth greater confusion in an armie, then to hinder mens fights: wherby many most puissaunt armies haue bene broken, by meanes their sight hath bene letted, either with dust, or with the Sunne: yet there is nothing, that more letteth the sight then the smoke that the artillerie maketh in shooting: therefore, I would thinke that it were more wisdome, to suffer the enemy to blinde himselfe, then to purpose (thou being blind) to go to find him: for this cause, either I would not shote, or (so that this should not be proued, considering the reputation that the artillerie hath) I would place it on the corners of the armie, so y^e shooting, it should not with the smoke thereof, blinde the front of the same, which is the importance of my men. And to proue that it is a profitable thing, to let the sight of the enemy, there may be brought for ensample Epaminondas, who to blinde the enemies armie, which came to fight with him, he caused his light horsemen, to runne before the front of the enemies, to raise vp the dust, and to lette their sight, whereby he gotte the victorie. And where it seemeth vnto you, that I haue guided the shotte of the artillerie, after my owne deuise, making it to passe ouer the heades of my men, I aunswere you, that most often times, and without comparison, the great ordinaunce misse the footemen, much sooner then hitte them: for that the footemen are so lowe, and those so difficult to

Nothing causeth greater confusion in an armie, then to hinder mens fights. Nothing more blindeth the sight of men in an armie, then y^e smoke of ordinaunce.

A policie to trouble y^e enemies sight.

The shot of great ordinaunce in the field, is not much to be feared of footmen,

The third Booke of

Because men
of armes stand
closer toge-
ther the light
horsemē, they
ought to re-
maine behind
the armie, till
the enemies
ordinaunce
haue don sho-
ting.

shote, that euery litle that thou raysest them, they passe ouer the heades of men: and if they be leueled neuer so litle to low, they strike in the earth, and the blow cometh not to them: also the vneuenesse of the ground saucth the, for that euery litle hillocke, or high place that is betwene the men and the ordinaunce, letteth the shotte thereof. And concerning horsemen, and in especiallie men of armes, because they ought to stande more close together, then the light horsemen, and for that they are much higher, may the better be stricken, they may, untill the artillerie haue shotte, bee kepte in the taile of the armie. True it is, that the Warkebutters do much more hurt, & the field peeces, then the great ordinaunce, for the which, the greatest remedie is, to come to hand strokes quickly: and if in the first assault, there bee slain some, alwaies there shall bee slaine: but a good Capitaine, and a good armie, ought not to make a counte of hurt, that is particular, but of a generall, and to unite the Swizzers, whom neuer elschue to fight, being made afraied of the artillerie: but rather punish with death those, which for feare thereof, either should go out of the ranke, or should make with his body any signe of feare. I made the (so soone as they had shotte) to be retired into the armie, & they might leaue the way free for the battaile: I made no more mention of them, as of a thing vnprofitable, the fight being begun. You haue also sayd, that considering the violence of this instrument, many iudge the armours, and the auncient orders to bee to no purpose, and it seemeth by this your talke, that menne now adaires, haue found orders and armours, which are able to defend them against the artillerie: if you knowe this, I would be glad that you would teach it mee: for that hitherto, I neuer sawe any, nor I beleue that there can any be found: so that I would vnderstand of such menne, for what cause the Souldiours on foote in these dayes, weare the brestplate, or the

the corselet of Steele, & they on horsebacke goe al armed : because seeing that they blame the auncient arming of men as vnprofitable, considering the artillerie, they ought to dispise also this : I would vnderstand moreouer, for what occasion the Swizzers, like vnto the auncient orders, make a battaile close together of fire or eight thousand men, & for what occasion all other haue imitated them, this order bearing the very same peril, concerning the artillerie, that those other should beare, which should imitate y^e antiquitie. I beleue they should not know what to aunswere : but if you should aske such souldiours as had some iudgement, they would answer first, that they goe armed, for that though the same armour defende them not from the artillerie : it defendeth them from crossebowes, from pikes, from swords, from stauces, and from al other hurt, that cometh from the enemies, they would answer also that they went close together like the Swizzers, to be able more easily to ouerthrow the footemen, to be able to withstand better the horse, and to giue more difficultie to the enemye to breake them : so that it is seene that the souldiours haue to feare many other things besides the ordinance : from which thinges with the armours, & with the orders, they are defended: wherof followeth, that the better y^e an armie is armed, & the closer that it hath the orders, & stronger, so much the surer it is : so that he that is of the same opinion, y^e you say, it becometh either that he be of small wisdom, or that in this thing, he hath studied verie litle : for as much as if we see, that so litle a part of the auncient maner of arming, which is vsed now a dayes, that is the pike, and so litle part of those orders, as are the maine battailes of the Swizzers do vs so much good, and cause our armies to be so strong, why ought not wee to beleue, that the other armours, and thother orders which are left, be profitable : Seeing that if we haue

The third Booke of

no regarde to the artilerie, in putting our selues close together, as the *Suizzers*, what other orders may make vs more to feare the same? For as much as no order can cause vs so much to feare the same, as those which bring men together. Besides this, if the Artillerie of the enemies should not make mee afraide, in besieging a Towne, where it hurteth me with more safegarde, being defended of a wall, I being not able to preuent it, but onely with time, with my Artillerie to let it, after such sort that it may double the blowe as it list, why should I feare the same in the field, where I may quickly preuent it? So that I conclude thus, that the Artillerie according to myne opinion, doth not let, that the auncient maners can not bee vsed, and to shew the auncient vertue: and if I had not talked already with you of this instrument, I woulde of the same, declare vnto you more at length: but I will remit my selfe to that which then I said.

The artillerie
is no let why
the auncient
orders of war-
fare ought not
to be vsed in
these daies.

Luigi. Wee may now vnderstande very wel, how much you haue about the Artillerie discoursed: and in conclusion, mee thinkes you haue shewed, that the preuenting it quickly, is the greatest remedie that may be had for the same, being in the fiede, and hauing an armie against you. Upon the which there groweth in me a doubt: because me thinkes, that the enemy might place his ordinance in such wise in his armie, that it should hurt you, and shoulde bee after such sort garded of the footemen, that it coulde not bee preuented. You haue (if you remember your selfe well) in the ordering of your armie to fight, made distances of three yardes, betweene the one battaile and the other, making those distaunces fiftene, which is from the battayles, to the extraordinary pykes: if the enemy should order his armie like vnto yours, and should put the artilerie a good way within those spaces, I beleue that from thence it should hurt you with their most great safegard: because
men

men cannot enter into y^e force of their enemies to prevent it. Fabricio. You doubt most prudently, and I will deuise with my selfe, either to resolue you the doubt, or shew you the remedie: I haue tolde you, that continually, these battails either through going, or through fighting are mouing, and alwaies naturally, they come to draw hard together, so that if you make the distances of a small breadth, where you set the artillerie in a litle time they be shot by, after such sort that the artillery cannot any more shote: if you make them large, to auoide this perill, you incurre into a greater, where you through those distances, not onely giue commoditie to the enemye, to take from you the artillerie, but to breake you: but you haue to vnderstand, that it is impossible to keepe the artillerie betwene the bands, and in especially those which go on carriages: For that the artillerie goeth one way, and shote another way: So that hauing to goe & to shote, it is necessarie, before they shote, that they tourne, & so; to tourne them, they will haue so much space, that fiftie cartes of artillerie, would disorder any armie: therfore, it is meete to keepe them out of the bandes, where they may be overcome in the maner, as a litle afoze we haue shewed: but admit they might be kept, and that there might be found a way betwene both, & of such condicion, that the pressing together of men should not hinder the artillery, & were not so open that it should giue way to the enemy, I say that it is remedied most easily, with making distaunces in thy armie against it, which may giue free passage to the shotte of those, and so the violence thereof shall come to be vaine, the which may be done most easily: for as much, as the enemye mynding to haue his artillerie stand safe, it behoueth that he put them behinde in the furthest part of the distances, so that y^e shot of the same, he purposing y^e they hurt not his own me, ought to passe by right lue, and by that very same al-

The third Booke of

A general rule
against such
things as can-
not be with-
stode.

waies : & therefore with giuing them place , easily they may be auoyded : for that this is a general rule, that to those thinges, which cannot be withstode , there must be giuen way, as the antiquitie made to the Elephants, and to the carres full of hokes. I beleue , yea , I am more then certaine, that it seemeth vnto you, y I haue ordered and won a battaile after my owne maner : notwithstanding , I and were vnto you this , when so much as I haue saide hetherto should not suffice , that it should be impossible, that an armie thus ordered, and armed, should not overcome at the first incounter, any other armie that should be ordayned , as they order the armies now a dayes , whom most often times , make not but one front, hauing no Targaets, and are in such wise vnarmed , that they cannot defende them selues from the enemy at hand, and they order them after such sort, that if they set their battailes by flanke , the one to the other, they make the arunc thinne : if they put the one behinde the other , hauing no way to receiue the one the other, they do it confusedly, and apt to be easily troubled : & although they giue iii. names to their armies, & deuide them into thre companies , vaward, battaile, and rereward , notwithstanding it serueth to no other purpose, then to march, and to distinguish the lodgings : but in the day of battaile , they binde them all to the first brunt , and to the first fortune.

Luigi. I haue noted also in the fighting of your field , how your Horsemen were repulced of the enemies horsemen : for which cause they relyed to the extraordinary Pikes : whereby grew , that with the aide of them , they withstode and braue the enemies backe : I beleue that the Pykes may withstand the hoxses , as you say , but in a grosse and thicke mayne battaile, as the Swizzers make : but you in your armie haue for the head five rankes of pikes , and for the flanke seuen , so that I cannot tell how they may be able

able to withstand them.

Fabritio. Yet I haue tolde you, how five rankes of Pikes were occupied at ones, in the Macedonicall Falangi, albeit you ought to vnderstand, that a manye battaile of Swizzers, if it were made of a thousand rankes, it cannot occupie more then foure, or at the most five: because the Pikes be five yardes and three quarters long, one yard and a halfe quarter, is occupied of the handes, wherefore to the first rancke, there remaineth free five yardes and a halfe, and a halfe quarter of Pike: the second rancke besides that, which is occupied with the hand, consumeth a yard and halfe a quarter in the space, which remaineth betwene the one rancke and the other: so y there is not left of Pike profitable, more then foure yardes and a halfe: to the third rancke, by this very same reason, there remaineth three yardes and a halfe: to the fourth, two yardes a quarter, to the fift one yard & halfe a quarter: the other rankes, so, to hurt, be vnprofitable, but they serue to restore these first rankes, as we haue declared, and to be a fortification to those v. Then if five of their rankes can withstand the horse, why cannot five of ours withstande them: to the which also there lacketh not rankes behind, that both sustaine and make them the very same stay, although they haue no Pikes as the other. And when the rankes of the extraordinary Pikes, which are placed on the flankes, should seme vnto you thinne, they may be brought into a quadrante, and put on the flankes nere the two battailes, which I set in the last company of the army: From the which place, they may easily altogether succour the front, and the backe of the armie, and minister helpe to the horses, according as neede shall require.

Luigi. Would you alwaies vse this forme of order, when you would pitch a field?

Fabritio. No, in no wise: so that you ought to varie the

A battail how great so euer it be, cannot at ones occupy about v. rankes of Pikes.

The third Booke of

the fashion of the armie, according to the qualitie of the situation, and the condition and quantitie of the enemy, as before this reasoning doe ende, shall be shewed certaine ensamples: but this forme is giuen vnto you, not so much as most strongest of all, where in dede it is very strong, as to the intent that thereby you may take a rule, and an order to learne to know the waies to ordaine the other: for as much, as euery science hath his generalitie, vpon the which a good part of it is grounded. One thing onely I aduise you, that you neuer order an armie, after such sorte, that those that fight afore: cannot be succoured of them, which be set behinde: because he that committeth this error, maketh the greatest part of his armie to be vnprofitable, and if it encounter any strength, it can not ouercome.

An aduertisement concerning the pitching of a field.

Luigi. There is growen in mee, vpon this parte a doubt. I haue scene that in the placing of the battailes, you make the front of five on a side, the midst of three, and the last partes of two, and I beleue, that it were better to ordaine them contrarywise: for that I thinke, that an armie should with more difficultie be broken, when he that should charge vpon it, the more that he should enter into the same, so much the stronger he should finde it: and the order deuised of you, mee thinks maketh, that the more it is entered into, so much the weaker it is found.

Fabritio. If you should remember how to the Triarii, whome were the third order of the Romane Legions, there were not assigned more then six hundred men, you would doubtlesse, hauing vnderstande how they were placed in the last company: For that you should see, how I, moued of this ensample, haue placed in the last company two battailes, which are nine hundred men, so that I come rather (following the ensample of the Romane people) to erre, for hauing taken to many, then to fewe: and although this ensam-
ple

ple should suffice, I will tell you the reason, the which is this. The first front of the armie, is made perfectly whole and thicke, because it must withstand the bzunt of the enemies, and it hath not to receiue in it any of their fellowes: and for this, it is fit that it bee full of men: because a few men should make it weake, either for thinnesse, or for lacke of sufficient number: but the seconde companie for as much as it must first receiue their friends, to sustaine the ennemie, it is mete that it haue great spaces, and for this it behoueth that it be of lesse number then the first: for that if it wer of greater number, or equall, it should be conuenient either not to leaue the distaunces, the which should be disordered, or leauing them, to passe the boundes of those asore, the which should make the fashion of the armie vnperfect: & it is not true that you say, that the ennemie the more that he entereth into the maine battaile, so much the weaker he findeth it: for that the ennemie can neuer fight with the second order, except the first be ioyned with the same: so that he commeth to finde the middest of the maine battaile more stronger, and not more weaker, hauing to fight with the first, and with the second order altogether: the very same happeneth when the ennemie should come to the third companie: for that there not with two battailes, which is found fresh, but with all the maine battaile he must fight: and for that this last part hath to receiue most men, the spaces thereof is requisite to be greatest, and that which receiueth them, to be the least number.

How the front of the armie ought to be made.

How the middel part of the armie ought to be ordered.

The ordning of the hinder part of y^e armie.

Luigi. It pleaseth mee the same that you haue tolde: but aunf were me also this: If the five first battailes do retire betwene the three second battailes, and after the eight betwene the two third, it seemeth not possible, that the eight being brought to gether, and then the tenne together, may bee receyued when they bee eight, or when they be tenne in the very same space,

D.

which

The third Booke of

which receiued the five.

Fabritio . The first thing that I aunswere is , that it is not the very same space: for that y^e five haue foure spaces in the middelt, which retiring betwene thre , or betwene the two , they occupie : then there remaineth the same space, that is betwene the one maine battaile and the other , and the same that is , betwene the battailes , and the extraordinary Pikes, all the which spaces makes largenesse : besides this, it is to be considered, that the battailes keepe other maner of spaces, when they be in the orders without being altered , then when they be altered : for that in the alteration : either they throng together , or they enlarge the orders: they enlarge them: when they feare so much , that they fall to flying: they thrust them together, when they feare in such wise, that they seeke to saue themselves , not with running away, but with defence : So that in this case, they should come to be distinguished , and not to be enlarged . Moreover, the five ranks of the Pikes, that are before, so soon as they haue begun the fight, they ought betwene their battailes to retire , into the taile of the armie, for to giue place to the Targact men, that they may fight : and they going into the tale of the army, may do such seruice as the Captayn should iudge, were good to occupie them about , where in the forward, the fight being mingled , they should otherwise bee altogether vnprofitable. And for this y^e spaces ordayned , come to be for the remnaunt of the men, wide enough to receiue them: yet when these spaces should not suffice, the flankes on the sides be men, and not walles , whome giuing place, and enlarging themselves , may make the space to contayne so much, that it may be sufficient to receiue them.

Luigi . The ranks of the extraordinary Pikes, which you place on the flankes of the armie , when the first battailes retire into the second, will you haue them

The retire of
the Pikes, to
place the Tar-
get men.

them to stand still, and remaine with two hornes to the armie: Or will you that they also retire together, with the battailes? The which when they should do, I see not how they can, hauing no battailes behinde with distaunces that may receiue them.

Fabritio. If the enimie overcome them not, when he inforreth the battailes to retire, they may stand still in their order, and hurt the enimie on the flanke, after that y first battailes were retired: but if he should also overcome them, as seemeth reason, being so puissaunce, y he is able to repulse y other, they also ought to retire: which they may do excellently well, although they haue not behinde, any to receiue them: because from the midst, they may redouble by right line, entering the one ranke into the other, in the maner whereof was reasoned when it was spoken of y other of redoubling: true it is, that to minde redoubling to retire backe, it beho- ueth to take an other way, then the same that I shewed you: for that I told you, that the second ranke, ought to enter into the first, the fourth into the third, and so forth: in this case, they ought not to begin before, but behinde, so that redoubling the ranks, they may come to retire backward, not to tourne forward: but to answer were to all the same, that vpon this foughten field by me shewed, might of you be replied, I say vnto you again, that I haue ordained you this armie, and shewed this foughten field for two causes, the one for to declare vnto you how it is ordered, the other to shew you how it is exercised: the order, I beleue you vnderstand most wel: and concerning the exercise, I say vnto you, that they ought to be put together in this form: as often times as may be: so as much as y heads learne thereby, to keepe their battailes in these orders: for that to particular souldiours, it appertaineth to keepe wel the orders of euery battaile, to the heades of the battailes, it appertaineth to keepe them well in euery order of

How the pikes
y are placed
on the flankes
of the armie
ought to go-
uerne them-

le
ri
n
te

The third Booke of

The number
that is meete
to be written
in the Ansigne
of euery band
of men.

The degrees of
honours in an
armie, which
such a man
ought to ryse
by, as should
be made a ge-
neral Captaine.

the armie, and that they know how to obey, at the
commandement of the generall Captaine: therefore
it is conuenient that they knowe, how to ioyne the
one battaile with the other, that they may know how
to take their place at once: and for this cause it is meet
that the Ansigne of euery battaile haue writtē in some
evident part, the number thereof: as well for to be a-
ble to commaund them, as also for that the Captaine, &
the souldiours by the same number, may more easilye
know them againe: also the maine battailes ought to
be numbred, and to haue their number in the princi-
pal Ansigne: Therfore it is requisite, to know of what
number the maine battaile shall bee, that is placed on
the left, or on the right hoine, of what numbers the
battailes be, that are set in the front, and in the middelt,
and so forth of the other. The antiquitie would also
that these numbers should be steppes to degrees of ho-
nours of the armies: as for ensample the first degree
is the petcaptain, the second the head of fiftie ordinarie
Ticiti, the third the Centurion, the fourth the head of
the first battaile, the fift of the second, the sixt of the
third, and so forth, euen to the tenth battaile, the which
must be honoured in the second place, next the gene-
rall Captaine of a maine battaile: nor any ought to
come to the same head, if first he haue not risen by by
all these degrees. And because besides these heads, there
be three Conestables of the extraordinarie Pikes, and
two of the extraordinarie Ticiti, I would that they
should be in the same degree of the Conestable of the
first battaile: nor I would not care, that there were
sixe men of like degree, to the entent that euery one of
them might strue who should do best, for to be promi-
sed to be head of the second battaile. Then euery one of
these heads, knowing in what place his battaile ought
to be set in, of necessitie it must follow, that at a sound
of the Trumpet, so soone as the head standard shall be
erected,

erected, all the armie shall be in their places : and this is the first exercise, wherunto an armie ought to be accustomed, that is, to set them quickly together : and to do this, it is requisite every day, and diuers tymes in one day, to set them in order and to disorder them.

Luigi. What armes would you that the Ansignes of all the armie should haue besides the number ?

Fabritio. The Standard of the generall Captaine ought to haue the armes of the Prince of the armie, all the other may haue the very same armes, and to varie with the fieldes, or to varie with the armes, as should seeme best to the Lord of the armie : Because this importeth little, so that the effect grow, y they be knowne the one from the other . But let vs passe to y other exercise : the which is to make them to moue, and with a conuenient pace to march, and to see that marching, they keepe the orders . The thirde exercise is, that they learne to handle themselves in the same maner, which they ought after to handle themselves in the day of battaile, to cause the artillerie to shoot, & to be draiuen out of the way, to make the extraordinari Celiti to issue out after a likenesse of an assault, to retyre them : To make that the first battailes as though they were soe charged, retyre into the spaces of the second, & after, al into the thirde, and from thence euery one to retourne to his place : and in such wise to vse them in this exercise, that to euery man al thing may be knowen, & familiar : the which with practise, and with familiaritie, is brought to passe most quicklie. The fourth exercise is, that they learne to know by meane of the sound, and of the Ansigne, the commaundement of their Captaine for as much as that, which shall be to them pronounced by voice, they without other commaundement, may vnderstand : & because the importaunce of this commaundement, ought to growe of the sound, I shall tell you what soundes the antiquitie vled . Of the Lacedemo-

The armes y ought to be in the standard, & in the Ansignes of an armie.

The second & third exercise of an armie.

The fourth exercise of an armie.

The third booke of

The sounds of
the instrumēt
of Musicke, y
the antiquitie
vled in theyr
armies.

is signi-
fied
compet.

nians, according as Tucidido affirmeth, in their armies were vled flutes: for that they iudged, that this harmonie was most meete to make their armie to proceede with grauitie, and with furie: the Carthaginens being moued by this verie same reason, in the first assault, vled the violone. Aliatte king of the Lidians, vled in the warre the violone, and the flutes: But Alexander Magnus, & the Romanes, vled hornes and Trumpets, as they, that thought by vertue of such instrumentes, to bee able to incourage more the mindes of Souldiours and make them to fight the more lustely: but as wee haue in arming the armie, taken of the Greeke maner, & of the Romane, so in distributing the soundes, we wil keepe the customes of the one, and of the other nation: therefore, nere the generall Captaine, I would make the Trompets (to stande, as a sound not onely apte to inflame the armie, but apt to be heard in all the whole tumulte more then any other sounde: all the other soundes, which should be about the Conestables, and the heads of maine battailes, I would that they should be small drummes, and flutes sounded, not as they sound them now, but as they vse to sound them at feastes. The Captaines then with the Trompet, should shew when they must stand still, and goe forward, or tourne backward, when the artillerie must shote, when the extraordinarie Meliti must moue, and with the varietie or distinction of such soundes, to shew vnto the armie all those motions, which generally may be shewed, the which Trompettes should be after followed of the drummes, and in this exercise, because it importeth much, it behoueth much to exercise the armie. Concerning the horsemen, there would bee vled likewise Trompettes, but of a lesse sound, and of a diuers voice from those of the Captaine. This is as much as is come into my remembraunce, about the order of the armie, and of the exercise of the same.

Luigi.

Luigi. I pray you let it not be græuous vnto you to declare vnto mee another thing, that is, for what cause you made the light horsemen, and the extraordinary Uelitie, to go with cries, rumours, and furie, when they gaue the charge? And after in the incountering of the rest of the arme, you shewed, that the thing followed with a most great silence: And for that I vnderstande not the occasion of this varietie, I would desire that you would declare it vnto mee.

Fabritio. The opinion of auncient Captaines, hath bene diuers about the comning to handes, whether they ought with rumour to go a pace, or with silence to go faire & softly: this last way, serueth to keepe the order more sure, and to vnderstand, better the commaundements of the Captayn: the first, serueth to incourage more the mindes of men: and for that I beleue, that respect ought to be had to the one, & to the other of these two thinges, I made the one go with rumour, and the other with silence: nor me thinks not in any wise, that the continuall runnours bee to purpose: because they let the commaundementes, the which is a thing most pernicious: nor it standeth not with reason, y the Romanes vsed, except at the first assault to make rumour: for that in their histories, is seene many times to haue happened, that through the wordes, and comfortinges of the Captayne, the souldiours that ran away, were made

The cries, and rumours, whē with the first charge is geue vnto the enemies, and the silence y ought to be vsed after, when the fight is once begun.

to stand to it, and in sundry wise by his commaundement, to haue varied the orders, the which should not haue followed, if the rumours had bene louder then his voyce.



The fourth booke of the arte of warre,
of Nicholas Machiauel, Citizen and Secretarie
of Florence, vnto Laurence
Philip Strozze.
(··)

Luigi.



Seing that vnder my gouerne-
ment, a field hath bene won so
honourably, I suppose that it
is good, that I tempt not fortune
any more, knowing how varia-
ble, and vnstable she is: and ther-
fore, I desire to giue vp my go-
uernement, & that Zanobi do exe-
cute nolve this office of demaun-
ding, minding to followe the order, which concerneth
the youngest: and I know he will not refuse this ho-
nour, or as we would say, this labour, as well for to do
mee pleasure, as also for being naturally of more sto-
macke then I: nor it shall not make him afrayed, to
haue to enter into these trauailes, where he may be as
well ouercome, as able to conquere.

Zanobi. I am readie to do what soeuer shall please
you to appoint mee, although that I desire more wil-
lingly to heare: for as much as hether to, your questions
haue satisfied mee more, then those should haue plea-
sed mee which in harkening to your reasoning, hath
chaunced to come into my remembraunce. But sir, I
beloeue that it is good, that you leaue no time, & that you
haue patience, if with these our Ceremonies wee trou-
ble you.

Fabritio. . You do me rather pleasure, for that this
variation of demaunders, maketh mee to know the
sundry

sundrie wittes, and sundrie appeties of yours: But remayneth there any thing, which seemeth vnto you good, to be ioyned to the matter, that all ready hath bene reasoned of?

Zanobi. Two thinges I desire, befoze you passe to an other part: the one is, to haue you to shewe, if in ordering armies, there needeth to be vsed any other fashio, the other, what respectes a Captayne ought to haue, befoze he conduct his men to y fight, and in the same any accident rising or growling, what remedy may be had.

Fabritio. I will inforce my selfe to satisfie you, I will not aunswere now distinctly to your questions: for that whilest I shall aunswere to one, many times it will come to passe, that I must aunswere to another, I haue tolde you, how I haue shewed you a fashion of an army, to the intent, that according to the same, there may be giuen all those fashions, that the enemy, & the situation requireth: For as much as in this case, both according to the powre thereof, and according to the enemy, it proceedeth: but note this, that there is not a more perillous fashion, then to distend much the front of the armie, if then thou haue not a most puissant, and most great host: otherwise, thou oughtest to make it rather grosse, and of small largnesse then of much largnesse, and thinne: for when thou hast fewe men in comparison to y enemy, thou oughtest to seeke other remedies, as is to ordaine thine army in such a place, where thou maiest be fortified, either through riuers, or by meanes of fennes, after such sorte, that thou canst not be compassed about, or to inclose thy selfe on the flanches with ditches, as Caesar did in France.

You haue to take in this case, this generall rule, to enlarge your selfe, or to draw in your selfe with the front, according to your number, and the same of the enemy. For the enemies being of lesse number, thou oughtest to seeke large places, hauing in especiall ye thy men

P.

well

To distende much y front of an armie, is most perillous

What is best for a Captaine to doe where his power is much lesse the the enemies power.

A general rule

The fourth Booke of

well instructed : to the intent thou maicst , not onely compasse about the enemye, but to descend thy orders: for that in places rough and difficulte, being not able to preuaile of thy orders , thou comcest not to haue any aduantage , hereby grewe , that the Romanes almost alwaies , sought the open fieldes , and aduoyded the straights. To the contrary , as I haue said, thou oughtest to do, if thou hast few men, or ill instructed: for that then thou oughtest to seeke places, either where the little number may be saued, and where the small experience do not hurt thee: Thou oughtest also to chuse the higher ground , to be able more easily to infect them: not withstanding, this aduertisement ought to be had, not to ordayne thy army, where the enemye may spie what thou doest, and in place nere to the routes of the same, where the enemies army may come : For that in this case, hauing respect vnto the artillerie, the higher place shall get thee disaduantage : Because that alwaies and commodiously , thou mightest of the enemies artillerye be hurt , without being able to make any remedy, and thou couldest not commodiously hurt the same , being hindered by thine owne men. Also, he that prepareth an armie to fight a battaile , ought to haue respect, both to the Sunne, and to the Wind, that the one and the other do not hurt the front, for that the one and the other, wil let thee the sight, the one with the beames, and the other with the dust: and moreover , the Winde hindereth the weapons, which are broken at the enemye, and maketh their blowes more feeble: and concerning the Sunne, it sufficeth not to haue care , that at the first it shine not in the face , but it is requisite to consider , that increasing the day , it hurt thee not : and for this , it should be requisite in ordering the men , to haue it all on the backe , to the intent it should haue to passe much tyme , to come to lye on the front . This waye was obserued of Aniball at Canne , and of Mario against

The higher ground ought to be chosen. An aduertisement not to place an army where the enemye may see what y same doth.

Respects for the Sunne and Winde.

against the Cimbrians. If thou happen to be much inferior of horses, ordayne thyne armie amongst vines, and trees, and like impedimentes, as in our time the Spaniards did, when they ouerthrew the Frenchmen at Cignuola. And it hath bene seene many tymes with all one Shouldiours, varying onely the order, and the place, that they haue become of losers victors, as it happened to the Carthageners, whom hauing bin overcome of Marcus Regolus diuers times, were after by the counsell of Santippo, a Lacedemonian victorious: whom made them to goe downe into the plaine, where by vertue of the horses, and of Elephantes, they were able to overcome the Romanes. It seemes vnto mee, according to the auncient insamples, that almost all the excellent Captaines, when they haue knowen, that the enemy hath made stronge one side of his battaile, they haue not set against it, the most strongest part, but the most weakest, and the other most strongest, they haue set against the most weakest: after in the beginning the fight, they haue commaunded to their strongest part, that onely they sustaine the enemy, and not to preace vpon him, & to the weaker, that they suffer themselves to be overcome, and to retire into the hindermost bands of the armie. This breedeth two great disorders to the enemy: the first, that he findeth his strongest part compassed aboute, the second is, that seeming vnto him to haue the victorie, seldom times it happeneth, that they disorder not themselves, whereof groweth his sodayne losse. Cornelius Scipio being in Spaine, against Aldrubal of Carthage, and vnderstanding how to Asdrubal it was knowen, that hee in the ordering the armie, placed his Legions in the midst, the which was the strongest part of his armie, and for this how Asdrubal with lyke order ought to procede: after when he came to fight the battaile, hee chaunged order, and put his Legions on the hornes of the armie,

The vaying of order and place, may cause the conquered to become victorious.

A policie in y^e ording of me and pitching of a held.

The fourth Booke of

and in the midst, placed all his weakest men: then coming to the handes, in a sodaine those men placed in the midst, he made to march softly, and the hoznes of the armie, with celeritie to make forward, so that onely the hoznes of both the armies fought, and the bands in the midst, through being distaunt the one from the other, ioyned not together, and thus the strongest part of Scipio, came to fight with the weakest of Asdrubal, and ouercame him. The which way was then profitable, but now hauing respect to the artillerie, it cannot be vsed: because the same space, which should remaine in the midst, betwene the one armie and the other, should giue tyme to the same to shote: The which is most pernicious, as aboue is saide: Therefore it is requisite to lay this way aside, and to vse, as a litle afore we said, making all the armie to incounter, & the weakest part to giue place. When a Captaine perceiueth, that he hath a greater army then his enemy, minding to compasse him about, before he be aware, let him ordayne his front equall, to the same of his aduersaries, after, so sone as the fight is begun, let him make y front by a litle & litle to retire, and the flankes to descende, & alwayes it shall happen, that the enemy shall finde him selfe, before he be aware compassed about. When a captaine will fight, as it were sure not to be broken, let him ordaine his armie in place, where he hath refuge nere, & safe, either betwene fenes or betwene hilles, or by some strong Citie: for y in this case, he cannot be followed of the enemy, where the enemy may be pursued of him: this point was vsed of Anibal, when fortune began to become his aduersarie, and that he doubted of the valiantnes of Marcello. Some to trouble the orders of the enemy, haue commaunded those that were light armed, to begin the fight, and that being begun, to retire betwene the orders: and when the armies were after buckled together, and that the fronte of

How to compasse about y enemies power.

How a Captaine may fight & be as it were sure, not to be ouercome.

How to trouble the orders of the enemy.

of either of them were occupied in fighting, they haue made them to issue out by the flankes of the battaile, and the same haue troubled and broken. If any perceiue himselfe to be inferiour of horse, he may besides the wayes that are already shewed, place behinde his horsemen a battaile of Pikes, and in fighting take order, that they giue way to the Pikes, and he shall remain alwayes superiour. Many haue accustomed to vse certaine footemen light armed, to fight among horsemen, the which hath bene to the chivalric most great helpe. Of all those, which haue prepared armies to the field, bee most praised Hanibal and Scipio, when they fought in Affricke: and for that Hanibal had his armie made of Carthaginers, and of straungers of diuers nations, he placed in the first front therof 80. Elephants, after he placed the straungers, behinde, whom he set his Carthaginers, in the hindermost place, he put the Italians, in whom he trusted little: the which thing hee ordained so, for that the strangers hauing before them the enemye, & behinde being inclosed of his men, could not flye: so that being constrained to fight, they should overcome: or wearie the Romanes, supposing after with his fresh and valiant men, to be then able easily to overcome the Romanes being wearied. Against this order, Scipio set the Astati, the Principi, & the Triarii, in the accustomed maner, to be able to receiue the one the other, and to rescue the one the other: he made the front of the armie, full of voyd spaces, and because it should not be perceiued, but rather should seeme united, he filled them full of Meliti, to whom he commaunded, that so soone as the Cliphantes came, they should auoide, and by the ordinarie spaces, should enter betwene the Legins, and leaue open the way to the Cliphantes, and so it came to passe, that it made vaine the violence of them, so that comming to hands, he was superiour.

What a Capitaine ought to doe when he hath not so many horsemen as y^e enemye.

A great ayde for horsemen.

The policies vied betwene Aniball & Scipio.

The fourth Booke of

Zanobi. You haue made me to remember, in alledging mee this battaile, how Scipio in fighting made not Aſtati to retire into the orders of their Principi, but hee deuided them, and made them to retire in the hoznes of the armie, to the intent they might giue place to the Principi, when he would force forwarde: therefore I would you should tell me, what occasion moued him not to obserue the accustomed order.

Fabritio. I will tell you. Hannibal had put all the strength of his armie, in the second band: wherefore Scipio for to set against the same like strength, gathered the Principi and the Triarii together: So that the distances of the Principi, being occupied of the Triarii, there was no place to be able to receiue the Aſtati: & therefore he made the Aſtati to deuide, and to goe in y hoznes of the armie, and he drue them not betwene the Principi. But note, that this way of opening the first band, for to giue place to the second, cannot be vsed, but when a man is superieur to his enemy: for that then there is commoditie to be able to do it, as Scipio was able, but being vnder, and repulced, it can not be done, but with thy manifest ruine: & therefore it is conuenient to haue behinde, orders that may receiue thee, but let vs tourne to our reasoning, The ancient Asiaticans, amongst other thinges deuised of them to hurt y enemies, vsed carts. The which had on y sides certaine hookes, so that not onely they serued to open with their violence y bands, but also to kil with y hookes the aduersaries: against the violence of those, in maners they provided, either they sustained them with the thickest of the rayes, or they receiued them betwene the bands, as the Elephantes were receiued, or els they made with art some strong resistance: as Silla a Roman made against Archelaus, whom had many of these cartes, which they called hooked, who for to sustaine them, drave many stakes into the ground, behinde

Carts full of
hookes made
to destroy the
enemies.

The remedie
y was vsed a-
gainst Carts
full of hookes.

hinde his first bandes of men, whereby the Cartes being stopped, lost their violence. And the wise manner that Sulla used against him in ordering the armie, is to be noted: for that he put the Eleuti, and the horse behind, and all the heauie armed afoze, leauing many distances to be able to sende befoze those behind, when necessitie required: whereby the fight being begun, with the hoysmen, to the which he gaue the way, he got the victorie. To intend to trouble in the fight the enemies armie, it is conuenient to make something to grow, that may make them afraied, either with shooting of newe helpe that cometh, or with showing thinges which may represent a terroure unto them: after such sort, that the enemies beguiled of that sight, may bee afraied, and being made afraied, they may easely be ouercome: the which waies Minutio Rufo used, and Accilio Glabrione, Consul's of Rome. Caius Sulpitius also set a great many of Sackes vppon Oxes, and other beastes vnpfitable for the warre, but in such wise ordeyned, that they seemed men of armes, and he commaunded, that they should appeare vppon a Wyll, while he were a fighting with the Frenchmen, whereby grewe his victorie. The very same did Marius when he fought against the Dutchemen. Then the sayed assaultes auayling much, whilst the fight continueth, it is conuenient that the very assaultes in deede do helpe much, inesppecially if at vniuerses in the midst of the fight the enemy might bee assaulted behind, or on the side: the which hardly may be done if the countrie helpe thee not: for that when it is open, part of thy men cannot be hidde, as is meete to be done in like enterprises: but in swaddie or hyllic places, and for this apte for ambushes, part of thy men may be well hidde, to be able in a sodaine, contrary to y^e enemies opinion to assault him, which thing alwaies shall be occasion to giue thee the victorie. It hath bene some

The strange manner that Sulla used in ordering his army against Archelaus.

How to trouble in the fight y^e armie of the enemies.

A policie of Caius Sulpitius, to make his enemies afraid

A policie of Marius against y^e Dutchemen.

time.

The fourth Booke of

A policie of
great impor-
tance, while a
battaile is a
fighting.

How horseme
may be disor-
dered.

How y Turke
gaue y Sophie
an overthrow.

How the Spa-
niards over-
came y armie
of Amilcare.

How to traine
the enemye, to
his dispractio.

A policie of
Tullo Hostilio
& Lucius Silla
in dissembling
of a matchace.

time of great importancce, whilest the fight continueth to low voices, which doe pronounce the Captaine of the enemies to be dead, or to haue overcome on the other side of the armie: The which many times to them that haue vsed it, hath giuen the victorie. The chualric of the enemies may be easely troubled, either with sightes, or with rumours, not vsed: as Creso did, whom putte Camelles against the horses of the aduersaries, and Pirrus set against the Romaine horsemen Cliphantes, the sight of which troubled & disordered them. In our time, the Turcke discomfited the Sophi in Persia, and the Souldane in Surria with no other, then with the noise of Harkabuses, the which in such wise, with their straunge rumours, disturbed the horses of those, that the Turcke might easely overcome them: The Spaniards to overcome the armie of Amilcare, put in the first front Cartes full of Tow, drawn of oren, and comming to handes, they kindled fire to the same, wherfore the oren to flie from the fire, thrust into the armie of Amilcar, and opened it. They are wont (as we haue said) to beguile the enemye in the fight, drawing him into their ambushes, where the Countrie is commodious for the same purpose, but where it were open and large, many haue vsed to make ditches, and after haue couered them lightly with bowes and yearth, & lefte certaine spaces whole to be able betwæne those to retire: after, so sone as the fight hath bene begun, retiring by those, and the enemy following them, hath fallen in the pittes. If in the fight there happen thee, any accident that may feare thy soldiers, it is a most prudent thing, to know how to dissemble it, and to peruert it to good, as Tullo Hostilio did, and Lucius Silla: whom seeing while they fought, how a part of his men were gone to the enemies side, and how the same thing had very much made afrayed his men, he made straight way throughout all the armie

armie to be understood, how all thinge proceeded, according to his order: the which not onely did not trouble the army, but it increased in them so much stomache, that he remayned victorious. It happened also to Sulla, that hauing sent certayne souldiours to do some businesse, and they being slaine he saide, to the intent his armie should not be made afraied thereby, that he had with craft sent them into the handes of the enemies, for that he had found them nothing faithfull. Sertorius fighting a battaile in Spaine, saue one, whome signified vnto him the death of one of his Captaynes, for feare that telling the very same to other, he should make the afraied. It is a most difficult thing, an army being now moued to flye, to staie it, and make it to fight. And you haue to make this distinction: either that it is all moued and then to be impossible to tourne it, or there is moued a part thereof, and then there is some remedye. Many Romane Captaines, with making afore those which fled, haue caused them to stay, making them ashamed of running away, as Lucius Sulla did, where alredy part of his Legions being tourned to fight, driven away by the men of Pythodates, he made afore them with a sword in his hand crying: if any of ke you, where you left your Captayne, say, we haue left him in Boecia, where he fighteth. Atrillius a Consull set against those that ran away, them that ran not away, made them to vnderstand, that if they would not tourne, they should be slaine of their friends, and of their enemies. Philip of Macedo. vnderstanding how his men feared the Scythian souldiours, placed behind his armie, certaine of his most trustie horsemen, and gaue commission to them, that they should kill whome soeuer fled, wherefore, his men mending rather to dye fighting, then flying, ouercame. Many Romanes, not so much to stay a fight, as for to giue occasion to their men, to make greater force, haue whilst they haue fought, ta-

Sertorius saue
a man for tel-
ling him of y
death of one
of his Cap-
taines.

How certaine
captains haue
staied their
men that hath
bene running
away.

Atrillius con-
strained his
men that ran
away to turne
again and to
fight.

How Philip
king of Mace-
donia made
his men afraid
to run away.

The fourth Booke of

ken an Ansigne out of their olone mens handes, & thowen it amongst the enemies, and appointed rewardes to him that could get it againe. I doe not beleue that it is out of purpose, to ioine to this reasoning those things which chaunce after the fight, in especially being bricke thinges, and not to be left behinde, and to this reasoning comfortable inough. Therefore I say, how the field is lost, or else worne: when it is worne, the victorie ought with all celerity to be followed, and in this case to imitate Caesar, and not Aniball, whome staying after that he had discomfited the Rom. at Canne, lost y^e empire of Rome: The other neuer rested after the victory, but followed the enemy being broken: with greater violence and furie, then when he assaulted him whole: but when a Captayne doth lose, hee ought to see, if of the losse ther may grow any vtilitie vnto him, in especially if there remayne any residue of the army. The commoditie may growe of the small aduertisement of the enemy, whom must often times after the victory, becommeth negligent, and giueth thee occasion to oppresse him, as Marcius a Romaine oppressed the armie of the Carthaginiers, whome hauing slain the two Scipions, and broken their armie, not esteeming the same remnant of men, which with Marcius remained a liue, were of him assaulted and ouerthrowen: for that it is sene, that ther is nothing so much to be brought to passe, as the same which the enemy thinketh that thou canst not attempt, because for the most parte, men be hurt most, where they doubt least: therefore a Captayne ought when hee cannot doe this, to deuise at least with diligence, that the losse be lesse hurtfull: to doe this, it is necessary for thee to vse meanes, that the enemy may not casely follow thee, or to giue him occasion to make delaye: in the first case, some after they haue bene sure to lose, haue taken order with their heads, that in diuers parts, and by diuers wayes they should flye, hauing appointed

Victory ought
with all celerity
to be followed.

What a Captaine
ought to do, when he
should chance
to receiue an
ouerthrow.

How Marcius
ouercame the
armie of the
Carthagin.

pointed to where they should after assemble together : the which made, that the enemy (fearing to deuide the army) was faine to let goe safe either all, or the greatest part of them. In the second case, many haue cast before the enemy, their dearest things, to the intent that by carrying about the spoile, might giue them more leasure to flie. Titus Dimius vsed no final policie to hyde the losse which he had receiued in the fight, for as much as ha-
 uing fought vntil night, with greate losse of his men, he made in the night to be buried, & greatest part of them, wherefore in the morning, the enemies seeing so many slaine of theirs, and so few of the Romanes, bele-
 uing that they had the disaduauntage, ran away. I trust I haue thus confusedly, as I said, satisfied in good part your demaund : in deede aboute the fashions of the ar-
 mies, there resteth me to tell you, how some time by some Captaines, it hath bene vsed to make them with the front, lyke vnto a wedge, iudging to bee able by such meane, more easily to open the enemies armie. A-
 gainst this fashion, they haue vsed to make a fashion lyke vnto a paire of spheres, to be able betwixen the same voide place, to receiue that wedge, and to compasse it about, and to fight with it on euery side : whereupon I will that you take this generall rule, that the greatest
 remedy that is vsed against a deuise of the enemy, is to do willingly the same, which he hath deuised that thou shalt do perforce : because that doing it willingly, thou dost it with order, and with thy aduauntage, & his disaduauntage, if thou shouldst do it being enforced, it should be thy vndwing : for the prouing wherof, I care not to rehearse vnto you, certaine things already tolde. The aduersarie maketh the wedge to open thy bandes : if thou goest with them open, thou disorderest him, and he disordereth not thee. Anibal, set the Elephants
 in the front of his armie, to open with them the armie of Scipio. Scipio went with it open, and it was the

A policie of Titus Dimius to hide a losse, which he receiued in a fight.

A general rule

Anibal.
 Scipio.

The fourth Booke of

Aldrubal.

occasion of his victorie, & of the ruine of him. Aldrubal placed his strongest men in the midst of y^e front of his armie, to ouerthrow Scipios men: Scipio commaunded, that by themselves they should retire and he broke them: So that like deuises when they are forescene, be the causes of the victorie of him, against whom they bee prepared. There remaineth me also, if I remember my selfe well, to tell you what respectes a Captaine ought to haue, before he lead his men to fight: vpon which I haue to tell you first, how a Captaine ought neuer to fight a battaile, except he haue aduantage, or be constrained. The vantage groweth of the situation, of the order of hauning more, or better men: the necessitie, groweth when thou seest how that not fighting, thou must in any wise lose, as should be for lacking of money, and for this, thy armie to be readie all maner of waies to resolve, where famishment is ready to assault thee, where the enemy looketh to be ingrossed with new men: in these cases, thou oughtest allwaies to fight, although with thy disaduantage: for that it is much better to attempt fortune, where thee may fauour thee, then not attempting, to see thy certaine ruine: and it is as greuous a fault in this case, in a Captaine not to fight, as to haue had occasion to overcome, and not to haue either knowen it through ignorance, or left it through wilenes. The aduantages some times the enemy giueth thee, and some times thy prudence: Many in passing Riuers, haue bene broken of their enemy, that hath bene aware thereof, whom hath taried, till the one halfe hath bene of the one side, and the other halfe on the other, and then hath assaulted them, as Caesar did to the Swizzers, where he destroyed the fourth part of them, through being halfe out a riuer.

A Captaine
ought not to
fight without
aduantage, ex-
cept he be co-
strained.

How aduantage
may be taken
of y^e enemies,

Some time thy enemy is found wearie, for hauning followed thee too indiscreetly, so that finding thy selfe fresh and lustie, thou oughtest not to let passe such an

an occasion : besides this , if the enimie offer vnto thee in the morning betimes to fight , thou mayest a good while deferre to issue out of thy lodging , and when he hath stood long in armour , & that hee hath lost that same first heate, with the which he came , thou mayest then fight with him . This way Scipio and Metellus vsed in Spaine : the one against Aldrubal, the other against Sertorius . If the enimie be minished of power , either for hauing deuided the armie, as the Scipions in Spaine, or for some other occasion , thou oughtest to proue chaunce. The greatest part of prudent Captaines , rather receiue the violence of the enemies , then go with violence to assault them : for that the furie is easily withstood of sure and steeby men , and the fury being sustained, conuerteth lightly into vileness : Thus Fabius did against the Samnites, and against the Galles, and was victorious , and his fellow Decius remained. Some fearing the power of their enemies , haue begun the fight a little before night , to the intent that their men chauncing to be overcome, might then by the helpe of the darkenesse thereof, saue themselves . Some hauing knowen , how the enemies armie being taken of certaine superstition, not to fight in such a time , haue chosen the same time to fight, and overcome : the which Cæsar obserued in France, against Ariouistus, and Vespasian in Surrie against the Iewes.

Fury withstood
conuerteth in
to vilenesse.

The greatest and most important aduertisement, that a Captaine ought to haue , is to haue about him faithfull men , that are wise and most expert in the warre, with whom he must continually consult, & reason of his men , and of those of the enemies , which is the greater number , which is best armed, or best on horsebacke, or best exercised , which bee most apt to suffer necessitie, in whom he trusteth most , either in the footmen, or in the horsemen : after they ought to consider the place where they bee, and whether it be more

What maner
of men a Cap-
taine ought to
haue about
him continu-
ally, to consult
with all.

The fourth booke of

The conditions of y^e Captaine, of y^e enemies and of those that are about him is most requisite to be known.

A timorous armie is not to be conducted to fight.

How to auoid the fighting of a feeld.

more to the purpose for the enemy, then for him: which of them hath bectualles most commodious, whether it be good to deferre the battaile, or to fight it: what good might be giuen him, or taken away by time: for that many times, Souldiours seeing the warre to be delayed, are grieved, and being wearie, in the paine and in the tediousnes thereof, will forsake thee. It importeth about all thing, to know the Captaine of the enemies, and whom he hath about him, whether hee be rash, or politike, whether he be fearefull, or hardie: to see how thou maiest trust vpon the aiding Souldiours. And about all thing thou oughtest to take heede, not to conduct the armie to fight when it feareth, or when in any wise it mistrusteth of the victorie: for that the greatest signe to lose, is when they beleue not to be able to winne: and therefore in this case thou oughtest to auoide the fighting of the field, either with doing as Fabius Maximus, whom encamping in strong places, gaue no courage to Anibal, to go to finde him, or when thou shouldest think that y^e enemy also in strong places, would come to finde thee, to depart out of the field, and to deuide the men into the townes, to the intent that tediousnes of winning them, may weary him.

Zanobi. Can not the fighting of the battaile be eitherwise auoided, then in deuiding the armie in sundrie partes, and placing the men in Townes?

Fabritio. I beleue that once already, with some of you I haue reasoned, how that he that is in the field, can not auoide to fight the battaile, when he hath an enemy, which will fight with him in any wise, and hee hath not but one remedie, and that is, to place him selfe with his armie distant fiftie miles at least, from his aduersarie, to be able betimes to auoide him, when he should goe to finde him. For Fabius Maximus neuer auoided to fight the battaile with Anibal, but he would haue it with his aduantage: and Anibal

Fabius Maximus.

did

did not presume to be able to overcome him, going to finde him in the places where he incamped: where if he had presupposed, to haue bene able to haue overcome, it had bene conuenient for Fabius, to haue fought the battailes with him, or to haue auoided.

Philip king of Macedonia, the same that was father to Perse, coming to warre with the Romanes, pitched his campe vpon a verie high hill, to the intent not to fight with them: but the Romanes went to finde him on the same hill, and discomfited him. Cingentorige Captaine of the French men, for that he would not fighte the field with Caesar, whom contrarie to his opinion, had passed a riuer, got away many mulies with his men.

The Venecians in our time, if they would not haue come to haue fought with the French king, they ought not to haue tarped till the French army, had passed the Riuer Addus, but to haue gotten from thence as Cingentorige, where they hauing tarped, knewe not how to take in the passing of the men, the occasion to fighte the battaile, nor to auoid it: for that the French men being nere vnto them, as the Venecians went out of their Campe, assaulted them, and discomfited them: so it is, that the battaile cannot be auoided, when the enemy in any wise will fight, nor let no man alledge Fabius, for that so much in the same case, he did slye the day of battaile, as Aniball. It happeneth many tymes, that thy souldiours be willing to fight, and thou knowest by the number, and by the situation, or for some other occasion to haue disadvantage, a desirest to make them chaunge from this desire: it happeneth also, that necessitie, or occasion, constraineth thee to fight, and that thy souldiours are euill to be trusted, and finally disposed to fight: where it is necessary in the one case, to make them afraied, and in the other to encourage them: In the first case, when yor weapons sufficeth not, there is no better way, then to glue in pray, a

Philip king of Macedonia. overcome by Romans.

How Cingentorige auoided the fighting of the feild with Caesar.

The ignorance of the Venecians.

What is to be done where souldiours desire to fight, contrary to their Captaine minde.

part

The fourth booke of

part of the unto y^e enemye, to the intent those that haue, and those that haue not fought, may beleue ther: and it may very well be done with art, the same which to Fabius Maximus happened by chaunce. The army of Fabius (as you know) desired to fight with Ambals army: the very same desire had the master of his horses to Fabius it seemed not good, to attempt the fight: so that through such contrarie opinions, he was faine to be inde the army: Fabius kept his men in the campe, the other fought, and coming into great perill, had bene ouerthrowen, if Fabius had not rescued him: by the which insample the master of the horse, together with all the army, know how it was a wise way to obey Fabius. Concerning to incourage the to fight, it should bee well done, to make them to disdaine the enemies, shewing how they speake slanderous wordes of them, to declare to haue intelligence with them, and to haue corrupted part of them, to incampe in place, where they may see the enemies, and make some light skirmish with them, so: that the thing that is dayly seene, with more facilitie is despised: to shewe them to be vnworthie, and with an oration for the purpose, to reprehend them of their cowardnesse, and so: to make them ashamed, to tell them that you will fight alone, when they will not beare you company. And you ought about all thing to haue this aduertisement, minding to make the souldiour obstinate to fight, not to permit, that they may send home any of their substance, or to leaue it in any place, till the warre be ended, that they may vnderstand, that although flying saue their life, yet it saue them their goodes, the loue whereof, is wont no lesse then the same, to make men obstinate in defence.

How to incourage
souldiours.

An aduertisement
to make
the souldiour
most obstinate
ly to fight.

Zanobi. You haue tolde, how the souldiours may be toured to fight, with speaking to them: doe you meane by this, that all the army must be spoken vnto, as to the heads thereof?

Fabritio

Fabritio . To perswade , or to disswade a thing vnto
 fewe , is very easie, for that if wordes suffice not , you
 may then vse authoritie and force : but the difficultie
 is, to remoue from a multitude an euill opinion, & that
 which is contrary either to the common profit , or to
 thy opinion, where cannot be vsed but wordes, & which
 is meete they bee heard of euerie man , minding to
 perswade them all . Wherefore, it was requisite that
 the excellent Captaines were oratours: for that with-
 out knowing how to speake to all the army , with dif-
 ficultie may be brought any good thing : the which al-
 together in this our time is layed aside. Reade the life of
 Alexander Magnus , and you shall see how many times
 it was necessary for him to perswade, and to speake pub-
 likely to his armye : otherwise he should neuer haue
 brought them , being become rich , and full of spoile,
 through the desertes of Arabia , and into India with so
 much his disease , and trouble : for that infinite times
 there grow things, whereby an army ruinateth , when
 the Captayne either knoweth not, or vseth not to speake
 vnto the same, for that this speaking taketh away feare,
 encourageth the mindes , increaseth the obstinatenesse
 to fight, discovereth the deceiptes , promisseth rewardes,
 sheweth the perills, and the waye to auoide them , re-
 prehendeth , prayeth , threateneth , filleth full of hope,
 praise , shame, and doth all those thinges , by the which
 the humane passions are extincte, or kindled, wherefore
 that Prince , or common weale , which should appoint
 to make a new power , and cause reputation to their
 armye, ought to accustome the Souldiours thereof , to
 heare the Capitaine to speake, and the Captayne to know
 how to speake vnto them, In keeping despoiled the soul-
 diours in olde time, to fight for their countrie, the reli-
 gion auailed much , and the othes which they gaue
 them, when they led them to warfare : for as much as
 in all their faultes, they threatned them not onely with

It is requisite
 for excellent
 Captains to be
 good orators.

Alexander Mag-
 nus vsed or, on-
 ly to perswade
 his army.

The effecte-
 oulnesse of
 speaking.

Souldiours
 ought to be
 accustomed
 to heare their
 captain speak.
 How in olde
 time souldiours
 were threat-
 ned for their
 faults.

The fourth Booke of

Enterprises
may y^e easeliet
be brought to
passe by means
of religion.
Sertorius.

those punishments, which might be feared of men, but with those which of God might be looked for: the which thing mingled with the other religious manners, made many times easie to the auncient Captaines all enterprises, and will do alwaies, where Religion shall bee feared, and obserued. Sertorius prevailed, by declaring that he spake with a Stagge, the which in Gods part, promised him the victorie.

A policie of
Silla.

Silla sayd, he spoke with an Image, which he had taken out of the temple of Apollo. Many haue told how God hath appeared vnto them in their sleepe, who hath admonished them to fight. In our fathers time, Charles the seuenth king of Fraunce, in the warre which hee made against the Englishmen, said, hee counsayled with a maide, sent from God, who was called euery where the Danosell of Fraunce, the which was occasion of his victorie. There may bee also vsed meanes, that

A policie of
Charles the
seuenth king
of Fraunce, a-
gainst y^e Eng-
lishmen.

How souldiors
may be made
to esteeme li-
tle their ene-
mie.

may make thy men to esteeme litle the enemye, as Agesilaos a Spartaine vsed, who shewed to his souldiours, certaine Persians naked, to the intent that seeing their delicate members, they should not haue cause to feare them. Some haue constrained their men to fight through necessitie, taking away from them all hope of sauing themselves, sauing in ouercomming. The which is the strongest and best prouision that is made, to purpose to make the Souldiour obstinate to fight, which obstinatenesse is increased by the confidence and loue of the Captaine, or of the countrie. Confidence is caused

The surest
way to make
souldiors most
obstinate to
fight.

By what means
obstinatnesse
to fight is in-
creased.

through the armour, the order, the late victorie, and the opinion of the Captaine. The loue of the countrie is caused of nature that of the Captaine, through vertue more then by any other benefite: the necessities may be many, but that is strongest, which constraineth thee either to overcome, or to die.

The

The fift booke of the arte of warre,

of Nicholas Machiauel, Citizen and Secretarie

of Florence, vnto Laurence

Philip Strozze.

(..)

Fabritio.



Haue shewed you, how an armie is ordayned to fight a field with an other armie, which is scene pitched against it, and haue declared vnto you, how & same is ouercome, and after many circumstances, I haue likewise shewed you, what diuers chaunces may happen about the same,

so that me thinkes time to shew you now, how an armie is ordered against the same enemy, which otherwise is not scene, but continually feared, that he assault thee: This happeneth when an armie marcheth through the enemies countrey, or through suspected places. First, you must understand, how a Romane armie sent alwaies ordinarily afoze, certaine bandes of horsemen, as spies of the way: after followed the right horne, after this, came all the carriages, which to the same appertained, after this, came a Legion, after it, the carriages thereof, after that an other Legion, and next to it, their carriages, after which, came the left horne, with the carriages thereof at their backe, and in the last part, followed the remnant of the chualrie: this was in effecte the manner, with which ordinarily they marched: and if it happened that the armie were assaulted in the way

How the Romanes marched with their armies.

The fifte Booke of

How the Romanes ordered their army when it happened to be assaulted on the way.



How y^e maine battails ought to march.

on the front , or on the backe , they made straight way all the cariages to be drawen , either on the right , or on the left side , according as chaunced , or as they could best , hauing respect to the situation : and all the men together free from their impedimentes , made head on that part where the enemy came . If they were assaulted on the flanke , they drew the cariages towarde the same part that was safe , & of the other , they made head . This way being well and prudently gouerned , I haue thought meete to imitate , sending afore the light horsemen , as explozators of the countrey : Then hauing foure maine battailes , I would make them to march in aray , and euery one with their cariages following them . And for that there be two sortes of cariages , that is pertaineing to particuler Souldiours , and pertaineing to the publique vse of all the Campe , I would deuide the publique cariages into foure parts , and to euery maine battaile , I would appoint his part , deuinding also the artillerie into foure partes , and all the vnarmed , so that euery number of armed men , should equally haue their impedimentes . But because it happeneth sometimes , that they march through the Countrey , not onely suspected , but so dangerous , that thou fearest euery howe to be assaulted , thou art constrained for to go more sure , to chaunge the forme of marching , and to goe in such wise prepared , that neither the Countrey men , nor any armie may hurt thee , finding thee in any part vnprovided .

In such case , the auncient Captaynes were wont to march with the armie quadzante , which so they called this forme , not for that it was altogether quadzant , but for that it was apt to fight of foure partes , & they said , that they went prepared , both for the way , and for the fight : from which way , I will not digresse , and I will ordaine my two maine battailes , which I haue taken for to make an armie of , to this effect .

Win-
ding

ding therefore, to march safely through the enemies
 Countrie, and to be able to aunsweere him on euerie
 side, when at vnwares the armie might chaunce to be
 assaulted, and intending therefore, according to the anti-
 quity, to bring the same into a square, I would deuise to
 make a quadzante, that the rowe thereof should be of
 space on euerie part. C.liv. yardes, in this maner. First
 I would put the flankes, distant the one flanke from
 the other. C.liv. yardes, and I would place fve battails
 for a flanke, in a raye in length, and distant the one frō
 the other, two yardes and a quarter: the which shall
 occupie with their spaces, euerie battaile occupying thir-
 tie yardes. C.liv. yardes. Then betwene the head and
 the tayle of these two flankes, I would place the other
 tenne battailes, in euery part fve, ordering them after
 such sorte, that foure should ioyne to the head of the
 right flanke, and foure to the tayle of the left flanke,
 leauing betwene euerie one of them, a distance of three
 yardes: one should after ioyne to the heade of the lefte
 flanke, & one to the tayle of the right flanke: & for that
 the space that is betwene the one flanke and the other,
 is. C.liv. yardes, and these battails which are set the one
 to the side of the other by breadth, & not by length, will
 come to occupie with y^e distaunces one hundred yardes &
 a halfe yarde, there shall come betwene them foure bat-
 tailes, placed in the front on the right flanke, and the
 one placed in the same on the left, to remayne a space of
 fiftie and eight yardes and a halfe, and the very same
 space will come to remayne in the battailes, placed in
 the hinder parte: nor there shall be no difference, sa-
 uing that the one space shall come on the part behind
 towarde the right horne, and the other shal come on the
 part afore, towarde the left horne. In the space of
 the. lviij. yardes and a halfe before, I would place all
 the ordinarie Clelii, in the same behind, the extraor-
 dinarpe, which will come to be a thousand for a space,

The ording
 of an armie
 after such sort,
 y^e it mai march
 safely through
 the enemies
 countrie & be
 alwaies in a re-
 dines to fight.

The place in
 y^e army where
 the bowmen
 & Harkebut-
 ters are apoin-
 ted.

The fift Booke of

and minding to haue the space that ought to be within the armie, to bee euery way a hundred fiftie and nine paces, it is meet that the five battailes which are placed in the head, and those which are placed in the taile, occupy not any part of the space which the flankes kepe: and therefore it shall be conuenient, that the five battailes behinde, do touch with the front, the taile of their flankes, and those afore, with the taile to touch the head after such sort, that vpon euery corner of the same armie, there may remaine a space to receiue an other battaile: and for that there bee foure spaces, I would take foure bandes of the extraordinary Pikes, and in euery corner I would place one, and the two Ansignes of the foresayd Pikes, which shall remaine ouerplus, I would set in the midst of the come of this armie, in a square battaile, on the head whereof should stand the generall Captaine, with his men about him. And for that these battailes ordained thus, march all one way, but fight not all one way, in putting them together, those sides ought to be ordayned to fight, which are not defended of thother battailes. And therefore it ought to be considered that the five battailes that bee in the front, haue all their other partes defended, except the front: and therefore these ought to be put together in good order, and with the Pikes afore. The five battailes which are behinde, haue all their sides defended, except the part behinde, and therefore those ought to be put together in such wise, that the Pikes come behinde, as in the place thereof we shall shew. The five battailes that bee in the right flanke, haue al their sides defended, except the right flanke. The five that bee on the left flanke, haue all their partes defended, except the left flanke: and therefore in ordering the battailes, they ought to be made, that the pikes may turne on the same flanke & lyeth open: & the Deticaptaines to stand on the head & on the taile, so that needing to fight, all the

The place in y
army wher the
extraordinary
pikes are ap-
pointed.

The place in
y army where
the generall
Captain must
be.

armour and weapons may be in their due places, the way to doe this, is declared where we reasoned of the maner of ordering the battailes. The artillerie I would deuide, and one part I would place without, on the left flank, and the other on the right. The light horsemen I would send afoze to discover the countrie. Of the men of armes, I would place parte behind, on the right ho:ne, and part on the left, distante about thirtie yardes from the battailes: and concerning horse, you haue to take this for a general rule in euery condition, where you ordaine an armie, that alwaies they ought to be put, either behinde, or on the flankes of the same: he that putteth them afoze, ouer against the army, it becometh him to do one of these two thinges, either that he put them so much afoze, that being repulced, they may haue so much space, that may giue them time, to be able to go aside from thy souldiers, and not to run vpon them, or to order them in such wise, with so many spaces, that the horses by those may enter betwene them, without disordering the. For let no man esteeme little this remembraunce, for as much as many Captaynes, whom hauing taken no heed thereof, haue been ruinated, and by themselves haue bene disordered, & broken. The carriages and the vnarmed men are placed in the rowne that remaineth within the army, and in such sorte equally deuided, that they may giue the way easely, to whome so euer would goe either from the one corner to the other, or from the one head, to the other of the armie. These battailes without the artillerie and the horse, occupie euery way from the vpper side, two hundred and eleuen yardes & a halfe of space: and because this quadrante is made of two manie battailes, it is conuenient to distinguish, what part the one maine battaile maketh, and what the other: and for that the manie battailes are called by the number, & euerie of them hath (as you know) tenne battailes

Where the artillerie must be placed.

The light horsemen must be sent before to discover the country, & the men of armes to come behinde the army. A general rule concerning horse.

Where the carriages and the vnarmed are placed.

The fift Booke of

and a generall head, I would cause that the first maine battaile, should set the first v. battailes thereof in the front, the other five, in the left flank, and the Captayne of the same should stand in the left corner of the front. The second maine battaile, should then put the first five battailes thereof, in the right flank, and the other five in the taile, and the head captaine of the same, should stand in the right corner, whom could come to do the office of the Vergiductor. The armie ordained in this manner, ought to be made to moue, & in the marching, to obserue all this order, and without doubt, it is sure from all the tumultes of the countrie men.

For the Captaine ought not to make other prouision, to the tumultary assaults, then to giue sometime Commission to some horse, or Ansigne of Meliti, that they set themselves in order: nor it shall neuer happen that these tumultuous people, will come to finde thee at the drawing of the sword, or Dikes point, for that men out of order, haue feare of those that be in aray: & alwaies it shall be sene, that with cries and rumours, they will make a great assaulte, without otherwise coming nere unto thee, like unto barking curres about a Mastie. Aniball when he came to the hurt of the Romans into Italie, he passed through all Fraunce, and alwayes of the French tumultes, hee took small regard. Binding to march, it is conuenient to haue playners & labourers afore, who may make thee y way playn, which shall be garded of those horsemen, that are sent afore to view the countrie: an armie in this order may march ten mile the day, and shall haue time ynough to incampe and suppe before Sunne going downe, for that ordinarily, an armie may march twentie mile: if it happen that thou be assaulted, of an armie set in order, this assaulte cannot grow sodainly: for that an armie in order, cometh with his pace, so that thou maist haue time ynough, to set thy selfe in order to fight the fildes, and

The way must be made plain where the army shall march in order.

How many miles a daye an armie may march in battaile ray to be able to incampe before y Sun set.

and reduce thy men quickly into the same fashion, or like to the same fashion of an armie, which afoze is shewed thee. For that if thou be assaulted, on the part afoze, thou needest not but to cause that the artillerie, that be on the flankes, and the horse that be behinde, to come before, and place themselves in those places, and with those distaunces as afoze is declared. The thousande Meliti that be before, must goe out of their place, and be deuided into fūe hundred for a part, and goe into their place, betwene the horse and the hornes of the armie: then in the voide place that they shall leaue, the two Ansignes of the extraordinary Dikes must enter, which I did set in the midst of the quadrant of the armie. The thousand Melitie, which I placed behind, must depart from the same place, and deuide themselves in the flankes of the battailes, to the fortification of those: and by the open place that they shall leaue, all the carryages and unarmed men must goe out, and place themselves on the backe of the battaile. When the rāme in the midst being voided, and euerie man gone to his place: the fūe battailes which I placed behind on the armie, must make forward in the voyde place, that is betwene the one and the other flanke, and marche towards the battailes that stand in the head, and three of them must stand within thirte yardes of those, with equall distaunces betwene the one and the other, and the other two shall remaine behind, distaunt other thirtie yardes: the which fashion may be ordained in a sudden, and cometh almost to be like vnto the first disposition, which of the armie afoze we shewed. And though it come straighter in the front, it cometh grosser in the flankes, which giueth it no lesse strength: but because the fūe battailes y be in the taile, haue y Dikes on the hinder part, for the occasion that before we haue declared, it is necessarie to make them to come on the part afoze, minding to haue them to make a backe

The ordering
of the army,
when it is as-
saulted on the
vaward.

The fift Booke of

to the front of the armie : and therefore it behoueth either to make them to tourne battaile after battaile, as a whole bodye, or to make them quickly to enter betwene the orders of targettes, and conduct them afoze the which way is more speedye, and of lesse disorder, then to make them to tourne all together : and so thou oughtest to do by all those, which remaine behinde in euerie condition of assaulte, as I shall shew you. If it appeare that the enemy come on the part behinde, the first thing that ought to be done, is to cause that euerie man tourne his face, where his backe stood, & straight way the armie cometh to haue made of taile, head, and of head taile: then all those wayes ought to be kept, in ordering the same front, as I tolde afoze. If the enemy come to incounter the right flank, the face of the army ought to be made to turne towardes the same side: after make all those things in fortification of the same head, which aboue is sayd, so y the horsemen, the Velitie, and the artillerie, may be in places confor[m]able to the head thereof: onely you haue this difference, y in varying the head of those which are trasposed, some haue to goe more & some lesse. In dede making head of the right flank, the Veliti ought to enter in the spaces, y be betwene the horne of the army, & those horse, which were nextest to the left flank, in whose place ought to enter, the two Ansignes of y extraordinary Pikers, placed in the midst: But first the carriages & the vnarmed, shall go, out by the open place, auoiding the rowe in midst, & retiring themselves behinde the left flank, which shall come to be then the taile of the armie: the other Veliti that were placed in the taile, according to the principal ordering of the armie, in this case, shall not moue: Because the same place should not remaine open, which of taylor shall come to be flank: all other thing ought to be done, as in ordering of the first head is sayde: this that is told about the making head of the right flank,

must

The ordering
of the army
when y enemy
comes to as-
sault it behind.

How the army
is ordered
when it is as-
saulted of any
of the sides.

must be understood to be told, having made to make it of the left flanke: for that the very same order ought to be obserued. If the enemy should come grosse, and in order to assault thee on two sides, those two sides, which he cometh to assault thee on, ought to be made strong with the other two sides, that are not assaulted, doubling the orders in each of them, and depending for both parts the artillerie, the Meliti, and the horse. If he come on thee on foure sides, it is necessary that either thou or he lacke prudence: for that if thou shalt be wise, thou wilt neuer put thy selfe in place, that the enemy on three or foure sides, with a great number of men, and in order, may assault thee: for that minding safely to hurt thee, it is requisite, that hee bee so great, that on euery side he may assault thee, with as many men, as thou hast almost in all thy armie: & if thou be so unwise, that thou put thy selfe in y danger & force of an enemy, whom hath three times more men ordained then thou, if thou catch hurt, thou canst blame no man but thy selfe: if it happen not through thy fault, but through some mischaunce, the hurt shall be without the shame, and it shall chaunce vnto thee, as vnto the Scipions in Spaine, and to Asdrubal in Italie: but if the enemy haue not many more men then thou, and intend for to disorder thee, to assault thee on diuers sides, it shall bee his foolishnes, and thy good fortune: for as much as to do so, it is conuenient that he become so thinke in such wise, that then easily thou mayest ouerthrow one band, and withstand an other, and in short time ruinate him: this manner of ordering an armie against an enemy, which is not seene, but which is feared, is a necessarie and a profitable thing, to accustome thy soldiers, to put themselves together, and to march with such order, and in marching, to order themselves to fighte according to the first head, and after to retourne in the fourme, that they marched in, then to

What is to be done whe the army is assaulted on two sides,

The fift Booke of

make head of the taile, after, of the flankes from these to retourne into the first fashion : the which exercises & vses be necessarie, minding to haue an armie, thoroughly instructed and practised : in which thing the Princes and the Captaines, ought to take paine. For the discipline of warre is no other, then to know how to commaund, and to execute these thinges. For an instructed armie is no other, then an armie that is well practised in these orders : nor it cannot be possible, that who soeuer in this time, should vse like discipline shall euer be broken. And if this quadrant forme which I haue shewed you, is somewhat difficult, such difficultnes is necessarie, taking it for an exercise: for as much as knowing well, how to set themselves in order, and to maintaine themselves in the same, they shall know after more easily, how to stand in those, which should not haue so much difficultie.

Commandements of Captaines being not well vnderstood, may be the destruction of an armie. Respect y^e is to be had in commaundements made with the sound of the Trompet.

Zanobi. I beleue as you say, that these orders bee verie necessarie, and I for my part, know not what to adde or take from it : true it is, that I desire to know of you two thinges, the one, if when you will make of the taile, or of the flanke, heade, and would make them to tourne, whether this be commaunded by the voice, or with the sound : the other, whether those that you send afoze, to make plaine the way, for the armie to march, ought to bee of the verie same souldiours of your battailes, or other vile men appoynted to like exercise. Fabritio. Your first question importeth much : for that many times the commaundements of Captaines, being not well vnderstode, or euill interpreted, haue disordered their armie : therefore the voices with the which they commaund, in perills ought to be cleare and nete. And if thou commaund with the sound, it is conuenient to make that betwene the one way and the other, there be so much difference, that the one cannot be chaunged for the other : and if thou commaundest
with

with the voice, thou oughtest to take heede that thou
 sie the generall voices, and to vse the particulars, and
 of the particulars, to sie those, which may be interpre- In common
 dements made
 with y voice,
 what respect
 is to be had.
 ted sinisterly. Many times the saying backe, backe,
 hath made to ruinate an armie: Therefore this voice
 ought not to be vsed, but in neede thereof to vse, re-
 tire you. If you wil make them to tourne, for to chaunge
 the head, either to flanke, or to backe, vse neuer to say
 tourne you, but say to the left, to the right, to the backe,
 to the front: thus all y other voices ought to be simple
 and nete, as thrust on, march, stand strong, forwarde,
 retourne you: and all those thinges, which may be done
 with the voice, they do, the other is done with the sound.
 Concerning those men, y must make the wayes plaine
 for the armie to march, which is your second question,
 I would cause my owne Soldiours to do this office, as Of Pianars.
 well because in the auncient warfare they did so, as al-
 so for that there should be in the armie, lesser number
 of vnarmed men, and lesse impedimentes: and I would
 chose out of euery battaile, the same number that
 should neede, and I would make them to take the instru-
 mentes, meete to plane the ground withall, and their
 weapons to leaue with those ranckes, that should bee
 neereest them, who should carrie them, and the enemy
 comming, they shall haue no other to doe, then to take
 them againe, and to retourne into their aray.

Zanobi. Who shall carrie the instruments to make
 the way plaine withall?

Fabritio. The cartes that are appoynted to carry the
 like instrumentes.

Zanobi. I doubt whether you should euer bring these
 our Soldiours, to labour with shouel or mattocke, af-
 ter such sort.

Fabritio. All these thinges shall be reasoned in the
 place thereof, but now I will let alone this part, and
 reason of the maner of the victualing of the armie: for

The fift booke of

that nre thinketh, having so much travailed them, it is time to refresh them, and to comfort them with meat. You haue to understand, that a Prince ought to ordaine his armie, as expedite as is possible, and take from the same all those things which may cause any trouble or burthen vnto it, and make vnto him any enterprize difficult. Amongest those things that causeth most difficultie, it is to be constrained to keepe the armie prouided of wine, and baked bread. The antiquity cared not for wine, for that lacking it, they dranke water mingled with a litle vineger, to giue it a taste. For which cause amonge the munitions of victualles for the host, vineger was one, and not wine. They baked not the bread in Duens, as they vse for Cities, but they prouided the meale, and of the same, euery Souldiour after his owne maner, satisfied himselfe, hauing for condiment Larde and Bacon, which made the bread sauorie, that they made, and maintained them strong, so that the prouision of victuals for the armie was Heale, Vineger, Lard, and Bacon, and for the horses Barley. They had ordinarily herdes of great beastes & small, which followed the armie, the which hauing no neede to be caried, caused not much impediment. Of this order there grew, that an armie in old time, marched sometimes many dayes through solitarie places, and difficulte, without suffering disease of victualles: for that they liued of things, which easily they might conuey after them. To the contrary it happeneth in the armies, that are now a dayes, which minding not to lacke wine, and to eate baked bread in the same maner, as when they are at home, whereof being not able to make prouision long, they remaine often times famished, or though they be prouided, it is done with disease, and with most great cost: therefore I would reduce my armie to this maner of living: and I would not that they should eate other bread, then that, which
by

The victuals
that the anti-
cuntie made,
prouision of,
for their ar-
mies.

by themselves they should bake. Concerning wine, I would not prohibite the drinking there of, nor yet the comming of it into the armie, but I would not vse indour, nor any labour for to haue it, and in the other provisions, I would gouerne my selfe altogether, like vnto the antiquitie: the which thing, if you consider well, you shall see how much difficultie is taken away, and how much trouble and disease, an armie and a Captayne is auoided of, and how much commoditie shall be giuen, to what so euer enterprise is to be done.

Zanobi. Wee haue overcome the enemy in the fildes, marched after ward vpon his countrey, reason would, that spoiles be made, townes sacked, prisoners taken, therefore I would know, how the antiquitie in these thinges, gouerned themselves.

Fabritio. Beholde. I will satisfie you. I beleene you haue considered, for that once already with some of you I haue reasoned, how these present warres, impouersish as well those Lordes that overcome, as those that lese: for that if the one lese his estate, the other leseth his money, and his inuables: the which in olde time was not, for that the conquerour of the warre, wared ritche. This groweth of keeping no compte in these dayes of the spoiles, as in olde time they did, but they leaue it to the discretion of the Souldiours. This maner maketh two most great disorders: the one, that which I haue tolde: the other that the Souldiour becommeth more couetous to spoile, and lesse obserueth the orders: and many times it hath bene scene, howe the couetousnesse of the praye, hath made those to lese, whome were victorious.

Therefore the Romanes which were Princes of armies, prouided to the one and to the other of these inconueniences, ordaining that all the spoyle should appertayne to the publick, and that the publicke after should bestowe it, as shoulde be thought good: and there

The occasions why y warres made now a daies, do impouerish the conquerours as well as the conquered.

The order y the Romans toke concerning y spoile & the booties that their souldiours got.

The fift booke of

therefore they had in tharmie the questours, who were as we would say, the chamberlaynes, to whose charge all the spoyle and booties were comitted: whereof the consul was serued to giue the ordinarie pay to the souldiours, to succour the wounded, and the sicke, and for the other businesse of the armie. The consul might well, and he vsed it often, to graunt a spoile to Souldiours: but this graunting made no disorder: for that the armie being broken, all the pray was put in the middelt, and distributed by head, according to the qualitie of euerie man: the which maner they constituted, to the entent that the Souldiours should attend to ouercome, and not to robbe: & the Romane legions ouercame the enemies, & followed them not, for that they neuer departed from their orders: onely there followed them, the horsemen, with those that were light armed, and if there were any other Souldiours then those of the Legions, they likewise pursued the chace. Where if the spoile shoulde haue bene his that got it, it had not bene possible nor reasonable to haue kept the Legions steddie, & to withstande many perills: hereby grew therefore, that the common weale enriched, and euerie Consull carryed with his triumphe into the treasure, much treasure, which all was of booties and spoyles. An other thing the antiquitie did vpon good consideration, that of the wages which they gaue to euerie Souldiour, the thirde part they would shoulde be layed by next to him, whom carried the Ansigne of their bande, which neuer gaue it them againe before the warre was ended: this they did, being moued of two reasons, the first was to the entent that the Souldiour should thus by his wages, because the greatest part of them being young men, and carelesse, the more they haue, so much the more without neede they spende, the other cause was, for that knowing that their mouables were next to the Ansigne, they should be constraines

An order that
the antiquitie
tooke, concer-
ning their soul-
diours wages.

to haue more care thereof, and with more obstinatenesse to defend it: and this made them strong and to holde together: all which thinges is necessary to obserue, purposing to reduce the exercise of armes vnto the intier perfection thereof.

Zanobi. I beleue that it is not possible, that to an arme that marcheth from place to place, there fall not perilous accidentes, where the industrie of the Captayne is needefull, & the worthynesse of the Souldiours, minding to auoide them. Therefore I would bee glad, that you remembryng any, would shew them.

Fabritio. I shall content you with a good will, being inesppecially necessary, intending to make of this exercise a perfect science. The Captaynes ought aboue all other thinges, whilst they march with an army, to take hede of ambushes, wherein they incurre daunger two waies, either marching thou enterest into them, or thorough craft of the enemye thou art trained in before thou arte aware. In the first case, minding to auoid such perril, it is necessary to send afoze double warde, whom may discouer the countrie, and so much the more diligence ought to be vied, the more that the countrie is apt for ambushes, as be the woddie or hilly countries, so that alwaies they be laide either in a wood, or behinde a hill: and as the ambush not foresene, doth ruine thee, so foreseing the same, it cannot hurt thee. Many times byrdes or much dust haue discouered the enemye: so that alwaies where the enemye cometh to finde thee, hee shall make great dust, which shall signifie vnto thee his comming: so often times a Captayne seeing in the places where he ought to passe, Doves to rise, or other of those byrdes that flye in flockes, and to tourne about and not to light, hath knowen by the same the ambush of the enemies to be there, and sending before his men, and certainly vnderstanding it, hath saued himselfe and hurte his enemye.

Captains may incurre danger of ambushes two manner of waies.

How to auoid the perill of ambushes.

How ambushes haue been perceiued.

L.

cerning

The fiste Booke of

How the Cap-
tain of the ene-
mies ought to
be esteemed.

Where men
be in greatest
perill.

The descrip-
tion of y cou-
trie where an
armie must
march, is most
requisite for a
Captaine to
haue.

concerning the second case, to be trained in, (which these
our men call to be drawn to the shot) you ought ot take
harde, not straight way to beleue those things, which
are nothing reasonable, that they be as they seem: as
should be, if the enemy should set afoze thee a praye,
thou oughtest to beleue that in the same is y hooke, and
that therein is hid the decepte. If many enemies bee
driven away by a fewe of thine, if a few enemies as-
saule many of thine, if the enemies make a sodaine
fight, and not standing with reason, alwaies thou
oughtest in such cases to feare decepte, and oughtest
neuer to beleue that the enemy knoweth not howe to
do his businesse, but rather intending that he may be-
guile thee the lesse, and minding to stand in lesse perill,
the weaker that he is, & the lesse craftier that the enemy
is, so much the more thou oughtest to esteeme him: and
thou oughtest in this case to vse two sundrie points, for
thou must feare him in thy minde and with the order,
but with wordes, and with other outward demonstration,
to seeme to dispise him: because the laste
way maketh that thy souldiours hope the more to haue
the victorie: the other maketh thee more warie, & lesse
apte to be beguiled. And thou hast to vnderstand, that
when menne marche through the enemies countrie,
they are in much more, and greater perills, then in fight-
ing the feld: and therefore the Captaine in marching,
ought to vse double diligence: and the first thing that
he ought to doe, is to get described, and painted oute
all the countrie, through the which he must march,
so that he may know the places, the number, the dis-
tances, the waies, the hilles, the riuers, the fennes,
and all the qualities of them: and to cause this to be
known, it is conuenient to haue with him diuersly, &
in sundrie maners such men: as knowe the places, and
to aske them with diligence, and to see whether their
talke agree, and according to the agreeing thereof, to
note

note, he ought also to sende afore the horsemen, and with them prudent heades, not so much to discover the enemy, as to view the countrey, to see whether it agreed with the description, and with the knowledge that they haue of the same. Also the guides that are sente, ought to be kept with hope of reward, and feare of paine. And about all thinges it ought to be provided, that the army know not to what business he leadeth them: so that there is nothing in the warre more profitable, then to keepe secret the thinges that is to be done: and to the intent a sodaine assaulte do not trouble thy Souldiours, thou oughtest to see them to stand, ready with their weapons, because the thinges that are provided for, offend lesse. Many for to auoyd the confusion of marching, haue place vnder the standards, the carriages, and the vnarmed, and haue commaunded them to followe the same, to the intente that in marching needing to stay, or to retire, they might do it more easily, which thing as profitable, I allowe verie much. Also in marching, aduertisement ought to be had, that the one parte of the army go not a sunder from the other, or that through some going fast, and some soft, the armye become not slender: the which thinges, bee occasion of disorder: therefore the heades must be placed in such wise, that they may maintaine the pace euen, causing to go soft those that go so fast, and to hast forward the other that go to slow, the which pace can not be better ruled, then by the stroke of the Drumme.

The waies ought to be caused to be enlarged, so that alwaies at least a band of iiii. hundred men may march in the order of the battayle. The custome and the qualitie of the enemy ought to be considered, and whether that he will assaulte thee, either in the morning, or at none, or in the euening, & whether he bee more puissant with footemen or horsemen, & according as thou vnderstandest to ordaine & to provide for thy self. But let vs come

A most profitable thing it is for a Capitaine to be secret in all his affaires.

An aduertisement concerning the marching of an armie.

The marching of an army ought to be ruled by y stroke of the Drum.

The condition of the enemy ought to be considered.

The fiftē Booke of

to some particuler accident . It happeneth sometime, that thou getting from the enemy, because thou iudgeth thy selfe inferiour , and therefore minding not to fight with him, and he conning at thy backe, thou arriuest at the bancke of a riuer , passing ouer the which, at keth time, so that the enemy is ready to ouertake thee , and to fight with thee. Some, which chaunsing to be in such perill , haue inclosed their armie on the hinder part with a ditch, and filling the same full of Tow, and firing it, haue then passed with the armie without being able to be lettēd of the enemy, he being by the same fire that was betwene them held backe.

Annone of
Carthage.

Zanobi. I am hard of beliefe, that this fire could stay them , inespéciallie because I remember that I haue heard, how Annone of Carthage, being besieged of enemies, inclosed himselfe on the same part , with woodde, which he did set on fire wher he purposed to make eruption. Wherefore the enemies being not intentiue on the same part to looke to him, he made his armie to passe ouer y same flame, causing euery man to hold his targact before his face for to defende them from the fire , and smoke . Fabritio. You say well, but consider you how I haue sayd, and how Annone did : for as much as I sayde that they made a ditch , and filled it with Tow, so that he that would passe ouer the same , should bee constrained to contende with the ditch and with fire : Annone made the fire without the ditch , and because hee intended to passe ouer it , he made it not great , for that otherwise without the ditch, it should haue lettēd him. Do you not know, that Nabide a Spartan being besieged in Sparta of the Romanes , set fire on part of his Towne to let the way to the Romanes, who already were entered in : And by meane of the same flame not onely hindered their way , but drave them out : but let vs tourne to our matter. Quintus Luttatius a Roman , hauing at his backe the Cimbr , and com-
ming

Nabide a
Spartane.

ming to a riuer , to thentent the enimie should giue him time to passe ouer, seemed to giue time to them to fight with him : and therefore he fained that he would lodge there, & caused trenches to be made , and certaine paulions to be erected, and sent certaine horsemen unto the Countrie for forredge : so that the Cimbrise believing, that he incamped, they also incamped , and deuyled themselves into sundrie partes , to prouide for victualls , wherof Luttatius being aware , passed the riuer they being not able to let him. Some for to passe a riuer hauing no bridge , haue deuised it , and one parte they haue tourned behind their backs, & the other then becomming shallower , with ease they haue passed it : when the riuers be swift, purposing to haue their footemen to passe safely , they place the strongest horses on the higher side, that they may sustaine the water , & on y other part below that may succour the men, if any of the riuer in passing should be overcome with the water: they passe also riuers that be verie deepe, with bridges, with botes and with barrells : and therefore it is good to haue in a readinesse in an armie wherewith to be able to make all these thinges . It fortuneth sometime that in passing a riuer , the enimie standing against thee on the other bancke , doth let thee : to minde to overcome this difficultie, I know not a better ensample to follow, then the same of Cæsar , whom hauing his armie on the bancke of a riuer in Fraunce, and his passage being letted of Vergintorige a french man , the which on the other side of the riuer had his men , marched many dayes a long the Riuer , and the like did the enimie : wherfore Cæsar incamping in a wooddie place , apt to hide men , he tooke out of euery Legion three Cohorts, and made them to tarie in the same place , commaunding them that so soone as hee was departed, they should cast ouer a Bridge , and should fortifie it , and hee with his other men followed on the way : where-

Quintus Luttatius policie to passe ouer a Riuer.

How to passe a riuer without a bridge.

A policie of Cæsar to passe a riuer, wher his enemy being on the other side thereof sought to let him.

The fift Booke of

foze Vergintorige seeing the number of the Legions, thinking that there was not left any part of them behinde, followed also his way: But Caesar when he supposed that the bridge was made, tourned backwarde, and finding all things in order, passed the riuer without difficultie.

How to know
the Foords of
a riuer.

Zanobi. Haue ye any rule to know the foordes?

Fabritio. Yea, we haue alwayes the riuer, in that part, which is betwene the water, that is stillest, and the water that runneth fastest, there is least depth, and it is a place more meete to be looked on, then any other where. For that alwayes in the same place the riuer is most shallowest. The which thing because it hath bene proued many times, is most true.

Zanobi. If it chaunce that the riuer haue made the fford, so that the hoyses sincke, what remedie haue you?

How to escape out of a
straight where
the same is beset
with enemies.

Fabritio. The remedie is to make hardels of rodde which must be placed in the bottom of the riuer, and so to passe vpon those: but let vs follow our reasoning. If it happen y a Captaine be lead with his armie, betwene two hilles, & that he haue not but two wayes to saue himselfe, either y before, or that behinde, & those being beset of the enemies, he hath for remedie to do the same, which some haue done heretofore, y which haue made on their hinder part a great trench, difficult to passe ouer, & seemed to the enemy, to mind to keepe him of, so to be able with all his power, without needing to feare behinde to make force that way, which before remained open: y which the enemies believing, haue made themselves strögg towards y open part, & haue forsaken the inclosed, & he then casting a bridge of wood ouer y trench, for such an effect prepared, both on the same part, without any impediment hath passed, and also deliuered himselfe out of the handes of the enemy. Lucius Minutius a Consull of Rome, was in Liguria with an armie

How Lucius
Minutius escaped
out of a straight.

armie, and was of the enemies inclosed, betwene certaine hilles, whereby he could not go out: therefore he sent certaine Souldiours of Iumidia on horsebacke, which he had in his armie (whome were euill armed, and vpon little leane horses) towardes the places that were kept of the enemies, whom at the first sight made the enemies, to order themselues together, to defende the passing: but after that they saw those men ill appointed, & according to their fashion euill horsed, regarding them little, enlarged the ordiers of their warde, wherof so sone as y^e Iumidians were away, geuing y^e spurs to their horses, and running violently vpon them passed before they could prouide any remedie, whom being passed, destroyed and spoyled the countrie after such sort that they constrained the enemies, to leaue the passage free to the armie of Lucius. Some Captaine which hath perceiued himselfe to be assaulted of a great multitude of enemies, hath drawen together his men, and hath geuen to the enemie comoditie, to compasse him all about, and then on the same part: which he hath perceiued to be most weake, hath made force, and by the same waye, hath caused to make way, and saued himselfe.

Wherein he was inclosed of his enemies

How some Captains haue suffred themselves to be compassed about of their enemies.

Marcus Antonius retiring before the armie of the Parthians, perceiued how the enemies euerie day before Sunne rising, when he remoued, assaulted him, and all the waie troubled him, in so much, that he determined not to depart the next day before Dune: so that the Parthians beleeuing, that he would not remoue that day, returned to their tentes. Whereby Marcus Antonius might then all the rest of the daye, march without any disquietnesse. This selfe same man for to auoid the arrowes of the Parthians, commaunded his men, that when the Parthians came towardes them, they should kneele, and that the second ranke of the battailes, should couer with their Targaettes, the heddes of the first, the thirde, the second, the fourth

A policie of Marcus Antonius.

A defence for the shot of arrowes.

The fift Booke of

fourth, the third, and so successiuelly, that all the armye came, to be as it were vnder a penthouse, and defended from the shotte of the enemies. This is as much as is come into my remembraunce, to tell you, which may happen vnto an army marching: therfore, if you remember not any thing els, I will passe to an other part.



The sixt booke of the arte of warre,

of Nicholas Machiauel, Citizen and Secretarie

of Florence, vnto Laurence

Philip Strozze.

(..)

Zanobi.



LBelæue that it is good, seeing the reasoning must be chaunged, that Baptist take his office, and I to resigne mine, and we shall come in this case, to imitate the good Captaynes (according as I haue now here vnderstood of the gentilman (who place the best Souldiours, before and behinde the armie, seeing vnto them necessary to haue before, such as may lustely begin the fight, and such as behinde may lustely sustaine it. Now seeing Cosimus began this reasoning prudently, Baptist prudently shall ende it. And for Luigi and I, haue in this middelt entertained it, and as euerie one of vs hath taken his part willingly, so I belæue not, that Baptist will refuse it.

Baptist. I haue let my selfe beæne governed hitherto so I minde to do still. Therefore be content sir, to followe your reasoning, and if we interrupt you with this practise of ours, haue vs excused.

Fabritio. You do me, as all ready I haue said, a most great pleasure: for this your interrupting mee, taketh not away my fantasie, but rather refresheth mee. But minding to follow our matter I saye, how that it is now tyme, that wee lodge this our armie, for

that

that

The sixt Booke of

that you know euery thing desireth rest and lasty , because to rest, and not to rest safely, is no perfect rest : I doubt much , whether it hath not bene desired of you, that I should first haue lodged them, after made them to march , and last of all to fight , and we haue done the contrary: wherevnto necessity hath brought vs, so: that intending to shew , how an armie in going , is reduced from the forme of marching, to the same manner of fighting , it was necessarie to haue first shewed , how they ordered it to fight. But turning to our matter, I say, that minding to haue the campe sure, it is requisite that it be strong, and in good order : the industrie of the

How the Grekes
incamped.

How the Romanes
incamped.

Captaine, maketh it in order: the situation, or the arte, maketh it strong . The Grekes sought strong situations, no: they would neuer place themselves , where had not bene either caue, or bancke of a riuer, or multitude of trees, or other naturall fortification, that might defend them: but the Romanes not so much incamped safe through the situation , as through arte , no: they would neuer incampe in place , where they should not haue bene able to haue raunged all their bandes of men according to their discipline . Whereby grew, that the Romanes might keepe alwaies one forme of incamping, so: that they would, that the situation should be ruled by them, not they by the situation : the which the Grekes coulde not obserue , so: that being ruled by the situation, and varying the situation and forme, it was conuenient, that also they should vary the maner of incamping, and the fashion of their lodgings. Therefore the Romanes, where the situation lacked strength, they supplied the same with arte, and with industrie. And so: that I in this my declaration , haue willed to imitate the Romanes. I will not depart from the manner of their incamping , yet not obseruing altogether their order, but taking the same parte , which sameth vnto mee, to be meete so: this present tyme . I haue told

you

you many times, how the Romanes had in their con-
 full armies, two Legions of Romane men, which
 were about aleuen thousand footmen, and sixe hun-
 dred horsemen, and moreover they had another aleuen
 thousand footmen, sent from their friendes in their aide:
 now in their armie they had neuer more souldiours that
 were straungers, then Romanes, except horsemen,
 whom they cared not, though they were more in num-
 ber then theirs: and in all their doings they did place
 their Legions in the middell, and the aiders, on y^e sides
 the which maner they obserued also in incamping, as
 by your selfe you may reade, in those authozs, that
 write of their actes: and therfoze I purpose not to shew
 you distinctly how they incamped, but to tell you onely
 with what order, I at this present would incampe my
 armie, whereby you shall then know, what part I haue
 taken out of the Romane maners. You know that in
 stode of two Romane Legions, I haue taken two
 maine battaillies of footmen, of sixe thousand footmen,
 and three hundred horsemen, profitable for a maine bat-
 taillie, and into what battaillies, into what weapons, into
 what names I haue deuised them: you know how in
 ordering the armie to march and to fight, I haue not
 made mention of other men, but onely haue shewed,
 how that doubling the men, they needed not but to
 double the orders: but minding at this present, to
 shew you the maner of incamping, we thinketh god
 not to stande onely with two maine battaillies, but to
 bring together a iust armie, made like vnto the Ro-
 manes, of two maine battaillies, and of as many moe ai-
 ding men: the which I make, to the intent that the
 forme of the incamping, may be the more perfect, by
 lodging a perfect armie: which thing in the other de-
 monstrations, hath not seemed vnto me so necessary:
 purposing then, to incampe a iust army of foure & twen-
 tie thousand footmen, and of two thousand god horse-

men,

men,

The maner
 of the incam-
 ping of an ar-
 mie.

The sixt Booke of

The lodging
for the gene-
rall Captain.

men being deuided into foure maine battaills, two of our owne men, and two of straungers, I would take this way. The situation being found, where I would incampe, I would erect the head standard, and about it, I would make out a quadzant, which should haue euery side distant from it 37. yardes and a halfe, of which euery one of them should lye, towarde one of the foure regions of heauen, as East, West, South, and North: between the which space, I would that the Captaines lodging should be appointed. And because I beleue that it is wisdom, to deuide the armed from the vnarmed, seeing that so for the most part the Romans did, I would therefore seporate the men, & were cumbered with any thing, from the vncumbered. I would lodge all, or the greatest part of the armed, on the side towards the East, and the vnarmed, & the cumbered on the West side, making East the head, and West the backe of the Campe, and South, and North should be the flanks: and so to distinguish the lodgings of the armed, I would take this way. I would draw a line from the head standard, and leade it towards the East, the space of fife hundred ten yardes & halfe: I would after, make two other lines, that should place in the middelt the same, and should bee as long as that, but distant eche of them from it a leuen yardes and a quarter: in the ende whereof, I would haue the East gate, and the space that is betwene the two vttermost lines, should make a way, that should goe from the gate, to the Captaines lodging, which shall come to bee 22. yardes and a halfe broad, and foure hundred 72. yardes and a halfe long, for the 37. yardes and a halfe, the lodging of the Captaine will take vp: and this shall be called the Captaine way. Then there shall be made an other way, from the South gate, to the North gate, and shall passe by the head of the Captaine way, and leaue the Captaines lodging towards the East, which way

way shall bee 9. hundred 37. yardes and a halfe long, (for the length therof will be as much as the breadth of all the lodgings) and shall likewise bee 22. yardes and a halfe broad, and shall be called the crosse way. Then so soone as the Captaines lodging were appointed out, and these two wayes, there shalbe begun to be appointed out the lodgings of our owne two maine battaills, one of the which, I would lodge on the right hand of the Captaines way, and the other, on the left: and therefore passing ouer the space, that the breadth of the crosse way taketh, I would place 32. lodgings, on the left side of the Captaine way, and 32. on the right side, leauing betwene the 16. and the 17. lodging, a space of 22. yardes and a halfe, the which should serue for a way ouerthwart, which should runne ouerthwart, throughout all the lodgings of the maine battailes, as in the distributing of them shall be seene.

Of these two orders of lodgings in the beginning of the head, which shall come to ioine to the crosse way, I would lodge the Captaine of the men of armes in the 15. lodgings, which on euery side followeth next, their men of armes, where each maine battaill hauing a hundred 50. men of armes, it will come to tenne men of armes for a lodging. The spaces of the Captaines lodgings, should be in breadth 30. and in length 7. yardes and a halfe. And note that when so euer I say breadth, it signifieth the space of the iniddest from South to North, and saying length, that which is from West to East. Those of the men of armes should be 11. yardes, and a quarter in length, and 22. yardes and a halfe in breadth. In the other 15. lodgings, that on euery side should follow thee, which should haue their beginning on the other side of the ouerthwart way, and which shall haue the very same space, that those of the men of armes had, I would lodge the light horsemen, whereof being a hundred

The lodgings for the men of armes, & their Captaine.

Note, which is breadth and which length in the square camp.

The lodging for the light horsemen, and their Captaine.

CLIII.

and

The sixt booke of

and fiftie, it will come to terme horsemen for a lodging, and in the 16. that remaineth, I would lodge their Captaine, giueing him the very same space, that is giuen to the Captaine of the men of armes: and thus the lodgings of the horsemen of two maine battailles, will come to place in the midst the Captaine way, and giue rule to the lodgings of the footemen, as I shall declare. You haue noted how I haue lodged the three hundred horsemen of euery maine battaille with their Captaines, in 32. lodgings placed on the Captaine way, hauing begun from the crosse way, and how from the 16. to the 17. there remaineth a space of 22. yardes and a halfe to make a way ouerthwart. Minding therfore to lodge the twentie battailles, which the two ordinarie maine battailles haue, I would place y lodging of euery two battails, behinde the lodgings of the horsemen, euery one of which, should haue in length 11. yardes and a quarter, & in breadth 22. yardes and a halfe, as those of the horsemen, and should be ioyned on the hinder part, that they should touch the one the other. And in euery first lodging on euery side which cometh to lie on the crosse way, I would lodge the Constable of a battaille, which should come to stand euen with the lodging of the Captaine of the men of armes, and this lodging shall haue onely of space for breadth 15. yardes, and for length seven yardes and a halfe. In the other fiftene lodgings that on euery side followeth after these, euen vnto the ouerthwart way, I would lodge on euery part a battaille of footemen, which being foure hundred and fiftie, there will come to a lodging 30. the other 15. lodgings, I would place continually on euery side on those of the light horsemen, with the very same spaces, where I would lodge on euery part, an other battaille of footemen, and in the last lodging, I would place on euery parte the Constable of the battaille, which will come

The lodging
for the foot-
men of two
ordinary main
battailles.

The lodgings
for the Con-
stables.

The number
of footmen
appointed to
euery lodging

come to ioyne with the same of the Captaine of the light horsemen, with the space of vii. yardes and a halfe for length, and xv. for bredeth: and so these two first orders of lodgings, shall be halfe of horsemen, and halfe of footemen. And for that I would (as in the place thereof I haue told you) these horsemenne should be all profitable, and for this hauing no seruantes which in keeping the horses, or in other necessary thinges might helpe them, I would that these footemen, who lodge behinde the horse, should be bounde to helpe to prouide, and to keepe them for their maisters: and for this to be exempted from the other doinges of the Campe. The which maner, was obserued of the Romanes. Then leauing after these lodgings on euerie parte, a space of xii. yardes and a halfe, which should make a waye, that should be called the one, the first way on the right hand, and on the other, the first way on the left hand, I would pitch on euerie side an other order of xxxii. double lodgynges, which should tourne their hinder partes the one against the other with the verie same spaces, as those that I haue tolde you of, and deuided after the sixtenth in the verie same maner for to make the ouerthwart way, where I would lodge on euerie side iii. battailes of footemen, with their Constables in both endes. Then leauing on euerie side an other space of xii. yardes and a halfe, that should make a way, which should be called of the one side, the second waye on the right hande, and on the other side, the second waye on the left hande, I would place an other order on euerie side of .xxxii. double lodgynges, with the verie same distance and deuisions, where I would lodge on euerie side other .iii. battailes with their Constables: and thus the horsemenne and the bandes of the two ordinarie maine battailes, should come to be lodged in three orders of lodgynges, on the one side of the Captayne waie, and in three other orders

The sixt booke of

ders of lodgings on the other side of the Captayne waie . The two aiding maine battailes (for that I caused them to be made of the verie same nation) I would lodge them on euerie part of these two ordinarie maine battailes, with y^e very same orders of double lodgynges , pitching firste one order of lodgynges, where should lodge halfe the horsemen , and halfe the fote men, distance .xxii . yardes & a halfe from the other, for to make away which should be called the one, the third way on the right hande , and the other the thirde way on the left hand . And after , I would make on euerie side , two other orders of lodgings, in the verie same maner distinguished and ordained , as those were of y^e ordinarie maine battailes , which shall make two other waies , and they all should be called of the numbꝛe, and of the hand, where they should be placed: in such wise , that all this side of the arme, should come to be lodged in .xii. orders of double lodgings, and in . xiii. waies, reckning captaine waie , and Crosse waie : I would there should remaine a space from the lodgynges to the Trenche of . lxxv. yardes round aboute : and if you reckon all these spaces, you shall see that from y^e midst of the Captaynes lodging to the east gate , there is . D.x . yardes . Now there remaineth two spaces , whereof one is from the Captaynes lodging to the South gate, the other is from thence to y^e North gate : which come to bee (either of them measuring them from the point in the midst) . CCCC . lxxvi. yardes . Then taking out of euerie one of these spaces xxxvii . yardes and a halfe , which the Captaynes lodging occupieth , and . xxxiiii . yardes euerie way for a market place, and . xxii . yardes and a halfe for a way that deuides euerie one of the saide spaces in the midst , and . lxxv. yardes, that is left on euerie parte betwene the lodgynges and the Trench , there remaineth on euerie side a space for lodgings of . CCC. yardes

yardcs broad, and lxxv. yardcs long, measuring y length with the space that the Captaynes lodging taketh vp.

Deuiding then in the middelt the said length, there would be made on euerie hand of the Captayne . xl. lodgingses xxxvii. yardcs and a halfe long, and xv. broad, which will come to be in all lxxx. lodgingses, wherein shall be lodged the heads of the maine battailes, the Treasurers, the Marshallcs of the fiede, and all those that should haue office in the armie, leauing some void for straungers that should happen to come, and for those that shall serue for good will of the Captayne. On the parte behinde the Captaynes lodging, I would haue away from South to North, xxiii. yardcs large, & should be called the head waye, which shall come to be placed a long by the lxxx. lodgingses aforesayde: for that this way and the crosse way, shall come to place in the middelt betwene them both the Captaynes lodging, and the lxxx. lodgingses that be on the sides thereof.

The lodgings for the chiefe Captaines of the main battailes and for the treasurers, marshalls and strangers.

From this head way, and from ouer against the Captaynes lodging, I would make an other waye, which should goe from thence to the West gate, likewise broadc xxii. yardcs and a halfe, and should aunswere in situation and in length to the Captayne way, and should be called the market way. These two wayes being made, I would ordeyne the market place, where the market shall be kept, which I would place on the head of the market way ouer against the Captaynes lodging, and ioyned to the head way, and I would haue it to be quadrant, and would assigne lxxx. yards and thre quarters to a square: and on the righte hand and left hande, of the said market place, I would make two orders of lodgingses where euerie order shall haue eight double lodgingses, which shall take vp in length ix. yardcs, and in breath two & twentie yardcs and a halfe, so that there shall come to be on euerie hand of the market place. xvi. lodgingses that shall place the

The sixte Booke of

Lodgings for
the horsemen,
of the extra-
ordinary main
battailes.

The lodgings
for the extra-
ordinary pikes
and Velitie.

same in the midst which shall be in all xxxii. wherein
I would lodge those horsemen, which should remaine
to the arding mayne battailes: and when these should
not suffice, I would assigne them: some of those lod-
ginges that placeth betwene them the Captaynes lod-
ging, and in especially those, that lye towardes the
Trenche. There resteth now to lodge the Pikes, and
extraordinarie Velitie, that euerie mayne battayle hath,
which you knowe according to our order, how euerie
one hath besides the x. battailes a thousande extraordi-
narie Pikes, and five C. Veliti: so that the two chiefe
mayne battailes, haue two . M. extraordinarie Pikes,
and a thousand extraordinary Veliti, and the ayders as
many as those, so that yet there remaineth to be lodged
vi. M. men, whom I would lodge all on the West side,
and along the Trenche. Then from the ende of the
head way, towardes North, leauing the space of lxxv.
yardes from them to the Trench, I would place an
order of five double lodgings, which in all should take
vp lvi. yardes in length, and xxx. in breadth: so that the
breadth deuided, ther will come to euerie lodging aluen
yardes and a quarter for length, and for breadth two
and twentie yardes and a halfe. And because there
shall bee tenne lodgings, I will lodge three hundred
men, appointing to euerie lodging thirtie men: lea-
uing then a space of three and twentie yardes and a
quarter, I would place in like wise, and with like spa-
ces an other order of five double lodgings, and agayne
an other, till there were five orders of five double lod-
ginges: which will come to be fiftie lodgings placed by
right line on the North side, euerie one of them distant
from the Trenche. lxxv. yardes, which will lodge fif-
tene hundred men. Tourning after on the left hande
towardes the West gate, I would pitch in all the same
traue, which were from them to the sayde gate, five
other orders of double lodgings, with the very same
spaces

spaces, and with the verie same maner : true it is, that from the one order to the other, there shall not be more then aleuen yardes and a quarter of space : wherein shall be lodged also fiftene hundred men : and thus from the North gate to the West, as the Trench tourneth, in a hundred lodgings deuided in tenne rewes of five double lodgings in a rowe, there will be lodged all the Pikes and extraordinarye Veliti of the chiefe maine battailles. And so from the West gate to the South as the Trench tourneth, euen in the verie same maner in other tenne rewes of ten lodgings in a rewe, there shall be lodged the Pikes, and extraordinarye Veliti of the aiding maine battailles. Their heades or their Constables may take those lodgings, that shall seeme vnto them most commodious, on the part towardes the Trench. The artillerie, I would dispose throughout all the campe, along the bancke of the trench : and in all the other space that should remaine towardes West, I would lodge all the vnarmed, and place all the impedimentes of the Campe. And it is to be vnderstande, that vnder this name of impedimentes (as you know) the antiquitie ment all the same traine, and all those thinges, which are necessarie for an armie, besides the Souldiours : as are Carpenters, Smithes, Masons, Ingeners, Bombardiers, although that those might be counted in the number of the armed, herds-men with their herdes of mottons and beues, which for victualing of the armie, are requisite : and moreover maisters of all sciences, together with publique carriages of the publique munition, which pertaine as well to victualing as to arming.

How the artillerie must be placed in the Campe.

Lodgings for the vnarmed men, and the places y are appointed for y impediments of the campe.

For I would not distinguish these lodgings particularly, onely I would marke out the waies which should not be occupped of them : then the other spaces, that betwene the wayes shall remaine, which shal bee foure I would appointe them generallie, for all the

The sixte Booke of

saide impedimentes that is one for the heardmen, the other for artificers and craftes men, the third for publique carriages of victualls, the fourth for the munition of armour and weapons. The wayes which I would should be left without occuppyng them, shall be the market way, the head way, and mozeouer a way that should be called the midwaye, which should goe from North to South, and should passe through the middest of the market way, which from the West part should serue for the same purpose, that the ouerthwart way doth on the East part. And besides this, a way which shall go about on the hinder part, along the lodgings of the Pikes and extraordinarye Celiti, and all these wayes shall be two and twentie yardes and a halfe broade. And the artillerie, I would place along the trench of the campe, round about the same.

Baptiste. I confesse that I vnderstand not, nor I beleue that also to say so, is any shame vnto me, this being not my exercise: notwithstanding, this order pleaseth me much: onely I would that you should declare me these doubtcs: The one, why you make the way, and the spaces about so large. The other, that troubleth me moze, is these spaces, which you appoynt out for the lodgings, how they ought to be vscd.

Fabritio. You must note, that I make all the waies 22. yardes and a halfe broade, to the intent that thorow them, may goe a battaille of men in aray, where if you remember well, I told you how euery band of men, taketh in breadth betwene 18. and 22. yardes of space to march or stande in. Now where the space that is betwene the Trench, and the lodgings is 75. yardes broad, the same is most necessarie, to the intent they may there order the battailes, and the artillerie both to conduct by the same the prayes and to haue space to retire themselues with new trenches,
and

and new fortification if neede were : The lodgings also, stand better so farre from the ditches, being the more out of daunger of fires, and other thinges, which the enemy might throw to hurt them. Concerning the second demaund, my intent is not that euery space of mee marked out, be couered with a pavilion onely, but to be vsed, as tourneth commodious to such as lodge there, either with more or with lesse tentes, so that they go not out of the bounds of the same. And for to marke out these lodgings, there ought to be most cunning men, and most excellent Architedours, whom, so soone as the Captaine hath chosen the place, may know how to giue it the fashion, and to distribute it, distinguishing the waies, deuiding the lodgings with Coardes and stauces, in such practised wise, that straight way they may be ordained, and deuided : and to minde that there grow no confusion, it is conuenient to tourne the camp, alwaies one way, to the intent that euery man may know in what way, in what space he hath to finde his lodging : and this ought to be obserued in euery time, in euery place, & after such maner, that it seme a moving Citie, the which where so euer it goeth, carrieth with it the verie same wayes, the verie same habitacions, and the verie same aspectes, that it had at the first : The which thing they cannot obserue, whom seeking strong situacions, must chaunge forme, according to the variation of the ground : But the Romanes in the plaine, made strong the place where they incamped with trenches, and with Rampires, because they made a space about the campe, and befoze the same a ditche, ordinarie broade foure yardes and a halfe, and deepe about two yardes and a quarter, the which spaces, they increased, according as they intded to tarie in a place, and according as they feared the enemy. I for my part at this present, would not make the listes, if I intend not to winter in a place : Yet I would make

The Campe
ought to be al-
waies of one
fashion.

The sixt Booke of

the Trench and the bancke no lesse then the foresayd, but greater according to necessitie. Also considering the artillerie, I would intrench vpon euery corner of the Campe, a halfe circle of ground, from whence the artillerie might flanke, whom so euer should seeke to come ouer the trench. In this practise in-knowing how to ordaine a campe, the Souldiours ought also to be exercised, and to make with them the officers expert, that are appointed to marke it out, and the Souldiours readie to know their places: no; nothing therein is difficult, as in the place thereof shall be declared: wherfore I wil go forward at this time to y ward of the campe, because without distribution of the watch, all the other paine that hath bene taken, should be vaine.

Baptiste. Before you passe to the watch, I desire that you would declare vnto me, when one would pitch his campe nere the enemy, what way is vsed: for that I know not how a man may haue time to be able to ordaine it without perill.

Fabritio. You shall vnderstand this, that no Captaine will lye nere the enemy, except he, that is disposed to fight the field, when soeuer his aduersarie will: and when a Captaine is so disposed, there is no perill, but ordinarie: for that the two partes of the armie, stand alwaies in a readinesse, to fight the battaille, and the other maketh the lodgings. The Romanes in this case gaue this order of fortifying the campe, vnto the Triarii: and the Principi, & the Astati, & rode in armes. This they did, for as much as the Triarii, being the last to fight might haue time ynough, if the enemy came, to leaue the worke, and to take their weapons, and to get them into their places. Therefore, according vnto the Romanes maner, you ought to cause the campe to be made of those battailles, which you will set in the hinder part of the armie, in the place of the Triarii. But let vs tourne to reason of the watch.

I thinke I haue not found, amongst the antiquitie, that for to warde the campe in the night, they haue kept watche without the Trench, disaunt as they vse now a daies, whom they call Scoutes: the which I beleue they did: thinking that the armie might easely be deceiued, through the difficultie, y^e is in seeing them againe, for that they might be either corrupted, or oppressed of the enemye: So that to trust either in parte, or altogether on them, they iudged it perillous. And therefore, all the strength of the watch, was within y^e trench, which they did withall diligence keepe, and with most great order punished with death, whomsoever observed not the same order: the which how it was of them ordained, I will tell you no other wise, least I should be tedious vnto you, being able by your selfe to see it, if as yet you haue not scene it: I shall onely briefly tell that, which shall make for my purpose. I would cause to stand ordinarily euerie night, the third part of the armie armed, & of the same, the sowerth part alwaies on foor, whom I would make to be distributed, through out all the bankes, and throughout all the places of the armie, with double warde, placed in euerie quadrant of the same: Of which, part should stand still, parte continually should go from the one corner of the Campe, to the other: and this order, I would obserue also in the day, when I should haue the enemye nere.

The antiquitie
vse no Scouts

The watch &
ward of the
Campe.

Concerning the geuing of the watche worde, and renewing the same euerie euening, and to do the other thinges, which in like watches is vscd, because they are thinges well inough knowen, I will speake no further of them: onely I shall remember one thing, for that it is of great importaunce, and which causeth great safegarde obseruing it, and not obseruing it, muche harme: The which is, that there be obserued great diligence, to knowe at night, who lodgeth not in the Campe, and who cometh a newe: and this is

Diligence
ought to be
vscd, to know
who lieth out
of the camp.

an

The sixt Booke of

and who they
be that com-
meth of new.

Claudius.
Nero.

The iustice y
ought to be in
a campe.

The faults y
the antiquitie
punished with
death.

an easie thing to see who lodgeth, with the same order that we haue appointed: for as much as euerie lodging hauing the determined number of menne, it is an easie matter to see, if they lacke, or if there be more men: and when they come to be absent without licence, to punish them as fugitiues, and if there be more, to vnderstand what they be, what they make there, and of their other conditions. This diligence maketh that y enemy cannot but with difficulty, practise with thy captaynes, and haue knowledge of thy counsailes: which thing if of y Romanes, had not ben diligently obserued, Claudius Nero could not, hauing Aniball nere him, departed from his Campe, which he had in Lucania, and to goe and to retourne from Barca, without Aniball should haue first hearde thereof some thing. But it sufficeth not to make these orders good, except they be caused to be obserued, with a great scueritie, for that there is nothing that would haue more obseruation, then is requisite in an armie: therfore the lawes for y maintenance of the same, ought to be sharpe & harde, and y execution thereof most harde. The Romanes punished with death him that lacked in the watch, he that forsoke the place that was giuen him to fight, he that caried any thing, hidde out of the Campe, if any man should say, that he had done some worthe thing in the fight, and had not done it, if any had fought without the commaundement of the Captayne, if any had for feare, cast away his weapons: and when it happened, that a Cohorte, or a whole Legion, had committed like fault, because they would not put to death all, they yet toke all their names, and did put them in a bagge, and then by lotte, they drew out the tenth parte, and so those were put to death: the which punishment, was in such wise made, that though euery man did not seele it, euerie man notwithstanding feared it: and because where be great punishmentes, there ought to be al-

so rewardes, minding to haue merite at one instant, to feare and to hope, they had appointed rewards to euery wortheie acte, as he that fighting, saued the life of one of his Citezens, to him that first leapt vpon the wall of the enemies Towne, to him that entered first into the Campe of the enemies, to him that had in fighting hurte, or slaine the enemy, he that had stricken him from his horse: and so euery vertuous acte, was of the Countsailes knowne and rewarded, and openly of euery man praised, and such as obtayned guiltes, for any of these things, besides the glozie and fame, which they got amongst the souldiours, after when they returned into their countrie, with sollemne pompe, and with great demonstration among their friendes & kinsfolks, they shewed them. Therefore it was no maruaile though the same people gotte so much dominion, hauing so much obseruation in punishment, and rewardes towardes them, whom either for their well doing, or for their ill doing, should deserue either praise or blame:

Of which things it were conuenient to obserue the greater part. For I thinke not good to keepe secrete, one manner of punishment of them obserued, which was, that so soone as the offendour, was before the Tribune, or Counsaile conuicted, he was of the same lightly stricken with a rodde: after the which striking, it was lawfull for the offender to flye, and to all the souldiours to kill him: so that straighte waye euery man threw at him either stones, or dartes, or with other weapons, stroke him in such wise, that he went but little way a line, and most few escaped, and to those that so escaped, it was not lawfull for them to retourne home, but with so many incommodities, and such great shame and ignomie, that it should haue bene much better for him to haue died. This manner is seene, to be almost obserued of the Swizzers, who make y^e condemned to be put to death openly of thother souldiours, y^e which

Where great punishments be, ther ought likewise to be great rewardes.

It was no maruell that y^e Romans became mightie Princes.

The sixte Booke of

A meane to
punish & exe-
cute iustice,
without rai-
sing tumults.

Manlius Ca-
pitolinus.

Souldiours
sworn to keepe
the discipline
of warre.

Women and
idle games,
were not suf-
fered by y^e an-
tiquitie, to be
in their armies

is well considered, and excellently done : for that inter-
ding , that one bee not a defendour of an euill doer,
the greatest reamedie that is found , is to make him
punisher of the same: because otherwise, with other re-
spect he fauoureth him : where when he himselfe is
made executioner, with other desire, he desireth his pu-
nishment , then when the execution commeth to an o-
ther . Therefore minding , not to haue one fauored in
his fault of the people, a great remedie it is, to make
that the people, may haue him to iudge. For the greater
prooffe of this, the insample of Mālius Capitolinus might
be brought , who being accused of the Senate, was de-
fended of the people , so long as they were not iudge,
but by comming arbitratours in his cause, they condemp-
ned him to death. This is then a way to punish, without
raising tumultes , and to make iustice to be kept : and
for as much as to bydel armed men , neither the feare
of the lawes , nor of men suffise not , the antiquitie
ioyned therevnto the auctoritie of God : and therefore
with most greater Ceremonies, they made their souldi-
ours to sweare, to keepe the discipline of warre, so that
doing contrarie wise, they should not onely haue to feare
the Lawes , and men, but God : and they vsed all dili-
gence, to fill them with Religion.

Baptiste . Did the Romaines permit , that women
might be in their armies, or that there might be vsed
these idle playes, which they vse now a daies?

Fabritio. They prohibited the one and the other,
and this prohibition was not much difficulte : for that
there were so many exercises, in the which they kept
euerie day the souldiours , some whiles particularly,
some whiles generally occupied, that they had no time
to thinke, either on Venus , or on playes, nor on any o-
ther thing, which sedicious and vnprofitable Souldiours
doe.

Baptiste, I am hercin satisfied, but tell me, when the
armie

armie had to remoue, what order kept they?

Fabritio. The chiefe Trumpet sounded thre times, at the first sound, they toke vp the tentes, and made the packes, at the second, they laded the carriage, at the third, they remoued in the same maner aforesaid, with the impedimentes after euery part of armed men, placing the Legions in the muddest: and therefore you ought to cause after the same sort, an extraordinarie maine battaille to remoue: and after that, the particular impediments therof and with those, the fourth part of the publique impedimentes, which should be all those that were lodged in one of those partes, which a litle afoze we declared: and therefore it is conuenient, to haue euery one of them appointed to a maine battaille, to the entent that y^e armie remouing, euerie one might know his place in marching: and thus euery maine battaille ought to goe alway with their owne impediments, and with the fourth part of the publique impedimentes, following after in such maner, as we shewed that the Romanes marched.

Order in the remouing the armie by the sounds of a Trumpet.

Baptiste. In pitching the Campe, had they other respectes, then those you haue told?

Fabritio. I tell you againe, that the Romanes when they incamped, would be able to keepe the accustomed fashion of their maner, the which to obserue, they had no other respect: but concerning for other considerations, they had two principall, the one, to incampe themselves in a wholesome place, the other, to place themselves, where the enemye could not besiege them, nor take from them the way to the water, or victuals. Then for to auoide infirmitie, they did aue from places fennie, or subiect to hurtfull windes: which they knew not so well, by the qualitie of the situation, as by the face of the inhabitours: for when they saw them euill coloured, or swollen, or full of other infirmitie, they would not lodge there: concerning the other

Respectes to be had for incamping.

How to chosse a place to incampe.

The sixte Booke of

How to auoid
diseases from
the armie.

The wonder-
full commodi-
tie of exercise.

The prouision
of victuals
ought alwaies
to be in a re-
dinesse in an
armie.

respect to prouide not to be besieged, it is requisite to consider the nature of the place, where the friends lie, and where the enemies, and of this to make a cōiecture, if thou maist be besieged or no: and therfore it is mete that the Captaine bee most expert, in the knowledge of situations of countries, and haue about him diuers men, that haue the verie same expertnesse. They auoid also diseases, and famishment, with causing the armie to keepe no misrule; for that to purpose to maintaine it in health, it is needfull to prouide, that the souldiours may sleepe vnder tentes, that they may lodge where be Trees that make shadow, where wodde is for to dresse their meat, that they goe not in the heate, and therfore they must be drawen out of the Campe, before day in Sommer, and in Winter, to take hēde, that they march not in the Snow, and in the Frost, without hauing commoditie to make fire, & not to lacke necessa-
rie apparell, nor to drinke naughtie water: those that fall sicke by chaunce, make the to be cured of Phisitions: because a Captaine hath no remedie, when he hath to fight with sickness, and with an enemy: but nothing is so profitable, to maintaine the armie in health, as is the exercise: and therfore the antiquitie euery day, made them to exercise: whereby is sene, how much exercise auaieth: for that in y^e campe: it kepeth the in health, and in the fight victorious. Concerning famishment, it is necessarie to see, that the enemy hinder the not of thy victualles, but to prouide where thou maicst haue it, and to see that the same which thou hast, be not lost: and therfore it is requisite, that thou haue alwaies in prouision with the armie, sufficient victuall for a moneth, and then remouing into some strong place, thou must take order with thy next friends, that daily they may prouide for the, and about all thinges bestowe the victuall with diligence, geuing euery day to euery man a reasonable measure, and obserue after
such

such sort this point, that it disorder thee not: because all other thing in the warre may with time bee overcome, this only with time ouercometh thee: nor there shall neuer any enemy of thine, who may overcome thee with famishment, that will seeke to overcome thee with yron. for that though the victorie be not so honourable, yet it is more sure and more certaine: When, the same armie cannot auoide famishment, that is not an obseruer of iustice, which licenciously consumeth what it list: because the one disorder, maketh that the victuals cometh not vnto you, the other, that such victuall as cometh, is vnprofitably consumed: therefore the antiquitie, ordained, that they should spend the same, which they gaue, and in the same time when they appointed: for that no souldiour did eate, but when the Captaine did eate: the which how much it is obserued of the armies now a dayes, euery man knoweth and worthily they cannot be called men of good order and sober, as the antiquitie, but lasciuious & drunkards.

Babriste. You sayd in the beginning of ordering the Campe, that you would not stand onely vpon two maine battailles, but would take foure, for to shew how a iust armie incamped: therefore I would you should tell me two thinges, the one, when I should haue more or lesse men, how I ought to incampe them, the other, what number of souldiours should suffice you to fight against what so euer enemy that were.

Fabritio. To the first question I aunswere you, that if the armie be more or lesse, then foure or five thousand souldiours, the orders of lodgings, may be taken away, or ioyned so many as sufficeth: and with this way a man may goe in more, and in lesse, into infinite: notwithstanding the Romanes, when they ioyned together two consull armies, they made two Campes, and they tourned the partes of the vnar-

How to lodge in the campe more or lesse men, then the ordinary.

The sixth Booke of

med, the one against the other. Concerning the second question, I say vnto you, that the Romanes ordinarie armie, was about xiiii. M. souldiours: but when they were drinen to fight against the greatest power that might bee, the most that they put together were l. M. With this number, they did set against two hundred thousand frenchmen, whom assaulted them after the first warre, that they had with the Carthageners. With this verie same number, they fought against Anniball. And you must note, that the Romanes, and the Greekes, haue made warre with few, fortifying themselves through order, and through art: the West and the East haue made it with multitude: but the one of these nations, doth serue with naturall furie, as doe the men of the West partes, the other through the great obedience which those men haue to their king. But in Greece, and in Italie, being no naturall furie, nor the naturall reuerence towards their king, it hath bene necessary for them to learne the discipline of war, the which is of so much force, that it hath made that a few hath bene able to ouercome the furie, and the naturall obstinatnesse of many. Therefore I say, that minding to imitate the Romanes, and the Greekes, the number of l. M. Souldiours, ought not to be passed, but rather to take lesse: because many make confusion, nor suffer not the discipline to be obserued, and the orders learned, and Pirrus vsed to say, that with xv. thousand men he would assaile the world: but let vs passe to another part. We haue made this our armie to winne a field, and shewed the trauailes, that in the same fight may happen: we haue it made to march, and declared of what impedimentes in marching it may be disturbed: and finally we haue lodged it, where not onely it ought to take a litle rest of the labours passed, but also to thinke how the warre ought to be ended: for that in the lodgings, is handled many thinges, inesppecially the

The number of men that an armie ought to be made of, to be able to fight with the puissantest enemy is.

Pirrus.

thy enemies as yet remayning in the fildes, and in suspected Townes, of whome it is good to be assured, and those that be enemies to overcome them: therefore it is necessarie to come to this demonstration, and to passe this difficultie with the same glorie, as hitherto we haue warred.

Therefore coming to particuler matters, I say that if it should happen, that thou wouldest haue many men, or many people to do a thing, which were to thee profitable, and to them great hurt, as should be to breake downe the wall of their citie, or to send into exile many of them, it is necessarie for thee, either to beguile them in such wise that euerie one beleue not that it toucheth him: so that succouring not the one the other they may finde them selues all to be oppressed without remedie, or els vnto all to commaunde the same, which they ought to do in one selfe day, to the intent that euerie man beleuing to be alone, to whom the commaundement is made, may thinke to obey and not to remedie it: and so without tumult thy commaundement to be of euerie man executed. If thou shouldest suspect the fidelitie of any people, and would assure thee, and overcome them at vnwares, for to colour thy intent more easely, thou canst not doe better, then to counsell with them of some purpose of thine, desiring their aide, and seeme to intend to make an other enterprise, and to haue thy minde farre from thinking on them: the which will make, that they shall not thinke on their owne defence, beleuing not that thou purpoest to hurt them, and they shall giue thee commoditie, to be able easely to satisfie thy desire.

When thou shouldest perceiue, that there were in thine armie some, that vsed to aduertise thy enemies of thy deuises, thou canst not doe better, minding to take commoditie by their traiterous mindes, then to commen with them of those thinges, that thou wilt not do, and those that thou wilt doe, to keepe secret, and to say

How to cause men to doe such a thing as should be profitable for thee and hurtfull to themselves.

How to overcome men at vnwares.

How to turne to commodity the doings of such as vse to aduertise thy enemy of thy proceedings.

to

The sixt Booke of

to doubt of thinges, that thou doubtst not, and those of which thou doubtst, to hide : the which shall make the enimie to take some interprise in hande , beleuing to know thy deuises , wherebv easily thou maiest beguile and oppresse him . If thou shouldest intend (as Claudius Nero did) to diminish thy armye , sending helpe to some friende , and that the enimie should not be aware there of, it is necessary not to diminish the lodgings, but to maintaine the signes, & the orders whole, making the very same fires, and the verie same wardes through out all the campe, as were wont to be afore.

How to order the camp that yene mie shall not perceiue whether the same be diminished, or increased.

Likewise if with thy army there should ioyne newe men , and wouldest that the enimie shoulde not knowe that thou werste ingrossed, it is necessarie not to increase the lodgings: Because keeping secret doinges and deuises, hath alwaies bene most profitable . Wherefore Metellus being with an armie in Hispanie , to one, who asked him what he would doe the next day , answered, that if his sherte knew therof, he would bourn it. Marcus Crassus , vnto one, whome asked him , when the armie should remoue, sayd beleuest thou to be alone not to here the trumpet? If thou shouldest desire to vnderstand the secretes of thy enimie, and to know his orders, some haue vsed to send ambassadours, and with them in seruantes apparell , moste expertest men in warre: whome hauing taken occasion to see the enemies armed, and to consider his strength and weaknesse , it hath giuen them opportunitie to ouercome him . Some haue sent into exile one of their familiars, & by meanes of the same , hath knowen the deuises of his aduersarye . Also like secretes are vnderstode of the enemies when for this effect there were taken any prisoners.

A saving of Metellus.

Marcus Crassus.

How to vnderstand the secretes of thy enemy.

A policie of Marius, to vnderstand how he might trust the Frenchmen.

Marius which in the warre that he made with the Cimbrie , for to know the faith of those Frenchmen, who then inhabited Lombardie , and were in leage with the Romane people, sent them letters open , and sealed

sealed and in the open he wrote , that they should not open the sealed , but at a certaine tunc , and before the same tunc demanding them againe, and finding them opened , knewe thereby that their faith was not to be trusted . Some Captaynes, being inuaded, haue not desired to go to meet the enemye, but haue gone to assault his countrey , and constrained him to returne to defend his owne home : The which many times hath come well to passe, for that those Souldiours beginning to fill themselves with booties , and confidence to overcome, shall sone make the enemies souldiours to waxe afraied, when they supposing themselves conquerours , shall vnderstand to become losers : So that to him that hath made this deuersion , many times it hath proued well . But onely it may be done by him, which hath his countrey stronger then that of the enemies , because when it were otherwise, he should goe to losse . It hath bene often a profitable thing to a Captayne , that hath bene besieged in his lodgings by the enemye, to moue an intreatie of a grément , and to make truse with him for certayne dayes : the which is wonte to make the enemies more negligente in all doinges : so that auayling thee of their negligence, thou mayest casely haue occasion to gette thee out of theyr handes . But this

What some captains haue don whē their country hath bene inuaded of enemies.

To make the enemye negligent in his doings.

Silla.

Asdruball.

Z.

Stand

The sixt Booke of

The policie of
Anibal, wher-
by he escaped
out of y^e daun-
ger of Fabius
Maximus.

A Captaine
must deuise
how to deuie
the force of
his enemies.

How to cause
the enemy to
haue in sus-
pect his most
trusty men.

Anibal.

Coriolanus.

Metellus a-
gainst Iugurte.

A practise of
the Romane
Oratours, to
bring Anibal
out of credit
with Antio-
chus.

How to cause
the enemy to
deuide his
power.

stand doubtfull, and still: as you know how Anibal did, who being inclosed of Fabius Maximus, tied in the night small Hauens kindeled betwene the hornes of mame Dren, so that Fabius astonied at the strangeness of the same sight, thought not to let him at all the passage. A Captaine ought among all other of his affaires, with all subtiltie to deuise to deuide the force of the enemy, either with making him to suspect his owne menne, in whome he trusteth, or to giue him occasion, that he may seporate his men, and thereby to become more weake. The first way is done with keeping safe the things of some of those which he hath about him, as to saue in the warre their menne and their possessions, rendering them their children, or other their necessities without ransome. You know that Annibal ha- uing burned all the fieldes about Rome, hee made onely to be reserued safe those of Fabius Maximus.

You know how Coriolanus comming with an armie to Rome, preserued the possessions of the Nobilitie, and those of the comminalltie he burned, and sacked. Metel- lus hauing an armie against Iugurte, all the oratours, which of Iugurte were sent him, were required of him, that they would giue him Iugurte prisoner and after to the very same men writing letters of the very same matter, wrought in such wise, that in shorte time Iu- gurte hauing in suspect all his counsellours, in diuers maners put them to death.

Annibal being fledde to Antiochus, the Romane ora- tours practised with him so familiarly, that Antiochus be- ing in suspect of him, trusted not any more after to his counsells. Concerning to deuide the enemies menne, there is no more certainer way, then to cause their coun- trie to be assaulted, to the intent that being constrain- ed to goe to defend the same, they may forsake the warre. This way Fabius vsed hauing against his
armie

armie the power of the Frenchmen, of y^e Lusitans, Umbres and Samnites. Titus Didius hauing a few men in respect of those of the enemies, and looking for a legion from Rome, and the enemies purposing to go to encounter it, to the intent that they should not go, caused to be noised through all his armie, that he intended the next day to fight the field with the enemies: after he vsed meanes, that certaine of the prisoners, that he had taken afore, had occasion to runne away. Who declaring the order that the Consull had taken to fight the next day, by reason whereof the enemies being afraid to diminish their owne strength, went not to encounter the same Legion, and by this way they were conducted safe. The which meanes serueth not to deuide the force of the enemies, but to augment a mans owne. Some haue vsed to deuide the enemies force, by letting him to enter into their countrie, and in promise haue let him take many townes, to the intent that putting in the same garnisons, he might thereby diminish his power, and by this way hauing made him weake, haue assaulted and overcome him. Some other minding to goe into one prouince, haue made as though they would haue inuaded another, and vsed so much diligence, that sodainly entering into the same, where it was not doubted that they would enter, they haue first wonne it: before the enemy could haue time to succour it: so that thy enemy being not sure, whether thou purpolest to tourne backe, to the place first of thee threatned, is constrained not to forsake the one place, to succour the other, and so many times he defendeth neither the one nor the other. It importeth besides the said thinges to a Captaine, if there grow sedition or discord among the Souldiours, to know with Arte how to extinguish it: The best way is to chastice the heades of the faulces, but it must be done in such wise, that thou mayest first haue

Z.ii.

How Titus Didius staied his enemies y^e were going to encounter a Legion of men that were coming in his ayde.

How some haue caused y^e enemy to deuide his force.

A policie to win y^e enemies countrie before he be aware.

How to reforme sedition and discord.

oppres

The sixt Booke of

The benefit
that the repu-
tation of the
captaine cau-
seth, which is
onely gotten
by vertue.

The chiefe
thing that a
captain ought
to doe.

When pay wa-
reth, punish-
ment is not to
be executed.

The inconue-
nience of not
punishing.

oppressed them, before they be able to be aware : The way is , if they be disfaunt from thee, not onely to call the offenders : but together with them all the other , to the entent that not beleauing , that it is for any cause to punish them, they become not contumelious, but giue commoditie to the execution of the punishment : when they be present , thou oughtest to make thy selfe strong with those that be not in fault , and by meane of their helpe to punish the other . When there happeneth discord among them, the best way is to bring them to the perill , the feare whereof is wont alwaies to make them agree . But that which aboue all other thing keepeth the armie in vnitie , is the reputation of the Captaine, the which onely groweth of his vertue : because neither blood, nor auaritie gaue it euer without vertue. And the chiefe thing which of a Captaine is looked for to be done , is, to kepe his Souldiours punished, and paid : for that when so euer the pay lacketh , it is conuenient that the punishment lacke : because thou canst not correcte a Souldiour , that robbeth, if thou dost not pay him , nor the same minding to liue, can not abstaine from robbing : but if thou payest him , and punishest him not , he becommeth in euerie condicion insolent : For that thou becommest of small estimation, where thou chauncest not to be able to maintaine the dignitie of thy degree , and not maintaining it, there followeth of necessitie tumult and discorde , which is the ruine of an armie. Old Captaines had a trouble, of the which the present be almost free, which was to interpret to their purpose the sinister auguries : because if their fell a thunderbolt in an armie , if the Sunne were darkened or the Moone , if there came an Earthquake , if the Captaine either in getting vp, or in lighting of his horse fell, it was of the souldiours interpreted sinisterously : And it ingendred in them so much feare , that coming to fight the fielde, easily they should

Should haue lost it : and therefore the auncient Capitaines so soone as a like accident grew , either they shewed the cause of the same, and reduced it to a naturall cause, or they interpreted it to their purpose. Caesar falling in Affrica, in comming off the Sea, saide, Affrica I haue taken thee. Moreover many haue declared the cause of the obscuring of the Moone, and of earthquakes: which thing in our time cannot happen, as well because our men be not so superstitious, as also for that our religion taketh away altogether such opinions: all be it when they should chaunce, the orders of the antiquitie ought to be imitated. When either famishment or other naturall necessitie, or humane passion, hath brought thy enemy to an vtter desperation, and he dyen of the same, commeth to fight with thee, thou oughtest to stand within thy Campe, and as much as lieth in thy power, to fye the fight. So the Lacedemonians did against the Hisionians, so Caesar did against Afranio, and Petrio. Fuluius being Consull against the Cimbrians, made his horsemen manie dayes continually to assault the enemies, and considered how they issued out of their Campe for to follow them: Wherefore he set an ambush behinde the Campe of the Cimbrians, and made them to be assaulted of his horsemen, and the Cimbrians issued out of their Campe for to follow them. Fuluius got it, and sacked it.

It hath bene of great vtilitie to a Captaine, hauing his armie nere to the enemies armie, to send his men with the enemies Ansignes to robbe, and to burne his owne countrey, whereby the enemies believing those to be men, which are come in their aide, haue also runne to helpe to make them the pray: and for this disordering themselves, hath thereby giuen opportunitie to the aduersarie to ouercome them. This way Alexander of Epirus vsed against the Illirians, and Leptenus of Siracusa against the Carthaginers,

Z.iii.

and

Caesar chauncing to fall, made y same to be suppoled to signify good lucke.

Religion taketh away fantastical opinions.

In what cases a Captaine ought not to fight with his enemy if he may otherwise choose.

A policie of Fuluius whereby he got and spoiled his enemies camp.

A policie to disorder the enemy.

The sixth booke of

A policie to
ouercome the
enemie.

A policie.

How to be-
guile y enemy.

How Menno-
nus tramed
his enemies
out of strong
places to be
the better a-
ble to ouer-
come them.

and both to the one and to the other, the deuise came to passe most happily. Many haue ouercome the enemie, geuing him occasion to eate and to drinke out of mea- sure, for faining to haue feared, & leauing their campes full of wine and heards of cattaille, whereof the enemie being filled aboue all naturall vie, haue then assaulted him, and with his destruction ouerthrowen him. So Ta- mirus did against Cyrus, and Tiberius Graccus against the Spaniards. Some haue poisoned the wine, & other thinges to feede on, for to be able more easly to ouer- come them. I said a litle afoze how I found not, that the antiquitie kept in the night scouters abroade, and supposed that they did it for to auoide the hurt, which might grow thereby: because it is found that through no other meane then through the watch man, which was set in the day to watch the enemie, hath bene cause of the ruine of him, that set him there: for that many times it hath happened, that he being taken, hath bene made perforce to tell them the token, where- by they might call his fellows, who comming to the token, haue bene slaine or taken. It helpeth to beguile the enemie sometime to varie a custome of thine, wher- vpon he hauing grounded himselfe, remaineth rui- nated: as a Captaine did once, whom vsing to cause to be made signes to his men for comming of the ene- mies in the night with fire, and in the day with smoke, commaunded that without any interuission, they should make smoke and fire, and after comming vpon them the enemie, they should rest, whom beleeuing to come without being scene, perceiuing no signe to be made of being discovered, caused (through going disordered) more easie the victorie to his ad- uersarie. Mennotus a Rodian, minding to draw from strong places the enemies armie, sent one vnder colour of a fugitiue, the which affirmed, how his armie was in disoord, and that the greater part
of

of them went away : and so to make the thing to be credited, he caused to make in sport, certaine tumultes among the lodgings : whereby the enemy thinking thereby to be able to discomfite them, assaulting them, were ouerthrowen.

Besides the said thinges, regard ought to be had not to bring the enemy into extreme desperation: whereunto Caesar had regard, fighting with the Ducheinen, who opened them the way, seeing, how they being not able to flye, necessitie made them strong, and would rather take paine to follow them, when they fled, then the perill to overcome them, when they defended themselves.

The enemy ought not to be brought into extreme desperation.

Lucullus seeing how certaine Macedonian horsemen, which were with him, went to the enemies part, straight way made to sound to battaile, and commaunded, that the other men should follow him : whereby the enemies beleuing that Lucullus would begin the fight, went to encounter the same Macedonians, with such violence, that they were constrained to defend themselves : and so they became against their willes, of fugitiues, fighters. It importeth also to know, how to be assured of a towne, when thou doubtst of the fidelitie thereof, so soone as thou hast wonne the field, or before, the which certaine olde insamples may teach thee.

How Lucullus constrained certaine men that ran away from him to his enemies, to fight whether they wold or not.

Pompei doubting of the Catenensians, prayed them that they would be content, to receiue certaine sickemenne, that he had in his armie, and sending vnder the habite of sicke persones, most lustie menne, gotte the towne. Publius Valerius, fearing the fidelitie of the Epidannians, caused to come, as who saith, a pardon to a church without the towne, and when all the people were gone for pardon, he shutte the gates, receiuing after none in, but those whome he trusted. Alexander Magnus, minding to goe into Asia, and to assure himselfe of Thracia, took with him all the prin-

A policie wherby Pompey got a Towne. How Publius Valerius assured himselfe of a Towne.

A policie Alexander Magnus used to be assured of all

cipall

The sixt booke of

Thracia, which
Philip king of
Spain did prac-
tise to be asu-
red of Englad
when he went
to S. Quintins.

Examples for
Captaines to
winne y harts
of y people.

ripall of the same Prouince, giuing them prouision, and he set ouer the conunon people of Thracia, men of low degree: and so he made the Princes contented with paying them, and the people quiet, hauing no heades that should disquiet them: But among all the thinges, with the which the Captaines, winne the harts of the people, be the ensamples of chastitie & iustice, as was the same of Scipio in Spaine, when he rendered that youg womā most faire of personage, to her father, and to her husband: the which made him more, then with force of armes to winne Spaine.

Cesar hauing caused that wood to bee payed for, which he had occupied for to make y Liffes, about his army in fraunce, got so much a name of iustice, y he made easier the cōquest of the same prouince. I cannot tell what remaineth me, to speake more vpon these accidentes, for y concerning this matter, ther is not left any part, y hath not bene of vs disputed. Onely there lacketh to tell, of y manner of winning, & defending a towne, the which I am readie to do willingly, if you be not now wearie.

Baptiste. Pour humanitie is so much, that it maketh vs to folloiw our desires, without being afraied to bee reputed presumptuous, seeing that you liberally offer the same, which we should haue bene a shamed, to haue asked you: Therefore, we say vnto you onely this, that to vs you cannot do a greater, nor a more greatfuller benefite, then to finish this reasoning. But before that you passe to that other matter, declare vs a doubt, whether it be better to continue the warre, as well in the Winter, as they vse now adayes, or to make it onely in the Summer, and to goe home in the Winter, as the antiquitie did.

Fabritio. See, that if the prudence of the demaunder were not, there had remained behind a special part, that deserueth consideration. I ans were you againe, that the antiquitie did all thinges better, and with more

more prudence then we: and if we in other thinges commit some errour, in the affaires of warre, we commit all errour. There is nothing more indiscrete, or more perrillous to a Captaine, then to make warre in the Winter, and much more perrill beareth he, that maketh it, then he that abideth it: the reason is this. All the industrie that is vsed in the discipline of warre, is vsed for to be prepared to fight a fielde with thy enemy, because this is the ende, wherevnto a Captaine ought to goe or endeuour himselfe: for that the foughten fielde, giueth thee the warre wonne or lost: then he that knoweth best how to order it, and he that hath his army best instructed, hath most advantage in this, and may best hope to ouercome. On the other side, there is nothing more enemy to the orders, & then the rough situations, or the cold watry time: for that the rough situations, suffereth thee not to descend thy bandes, according to thy discipline: the colde and watry times, suffereth thee not to keepe thy men together, nor thou canst not bring them in good order to the enemy: but it is conuenient for thee to lodge them, a sunder of necessitie, and without order, being constrained to obey to Castells, to Boroughes, and to the Villages, that may receiue thee, in maner that all thy labour of thee, vsed to instruct the army is vaine. For marnalle you not though now a daies, they warre in the Winter, because the armies being without discipline, know not the hurt that it doth them, in lodging not to gether, for that it is no grieue to them not to be able to keepe those orders, & to obserue that discipline, which they haue not: yet they ought to see how much harme, the Camping in the Winter hath caused, and to remember, how the French men in the yeare of our Lorde God, a thousand five hundred and thre, were broken at Cariliano of the Winter, and not of the Spaniards: for as much as I haue saide, he that assaulteth, hath more disadvantage,

Warre ought not to be made in winter.

Rough situations, cold & watry times are enemies to the order of warre.

An ouerthrow caused by winter.

Aa.

then

The sixt Booke of

then he that defendeth: because the fowle weather hurteth him not a littell, being in the dominion of others & minding to make warre. For that he is constrayned, either to stand together with his men, and to sustaine the incommodie of water and colde, or to auoide it to deuide his power: But he that defendeth, may chuse the place as he listeth, and tary him with his fresh men: and he in a sodaine may set his men in aray, and goe to find a band of the enemies men, who cannot resist the violence of them. So the Frenchmen were discomfited, and so they shall alwaies be discomfited, which will assault in the Winter an enemy, who hath in him prudence. Then he that will that force, that orders, that discipline and vertue, in any condition auaille him not, let him make warre in the fiesde in the winter: and because that the Romanes would that all these thinges, in which they bestowed so much diligence, should auaille them, fledde no other wise the Winter, then the high Alpes, and difficulte places, and whatsoeuer other thing should let them, so: being able to shew their arte and their vertue. So this suffiseth to your demand, wherefore we will come to intreat of the defending and besieging of townes, and of their situations and edifications,

The



The seventh booke of the arte of war,

of Nicholas Machiauel, Citizen and Secretarie

of Florence, vnto Laurence

Philip Strozze.

(.)



You ought to know how y^e towne
and fortresses, may be strong ei-
ther by nature or by industrie :
by nature, those be strong, which
be compassed about with riuers,
or with fennes, as Mantua is
and Ferrara, or which be builded
vpon a rocke, or vpon a steepe
hill, as Monaco, and Sanleo : For

Townes and
Fortresses mai
be strong two
waies.

that those that stande vpon hilles, that be not much
difficult to go vp, be now a daies considering the ar-
tillerie and the Canes, most weake. And therefore most
often times in building, they seeke now a daies a plaine,
for to make it strong with industrie.

The place y^e
now a daies is
most sought to
fortifie in.

The first industrie is, to make the walles crooked,
and full of tournings, and of receiptes: the which
thing maketh, that the enemy cannot come nere to it,
because he may be hurt, not onely on the front, but
by flank. If the walles be made high, they bee too
much subiect to the blowes of the artillerie: if they bee
made low, they be most easie to scale. If thou ma-
kest the ditches on the out side thereof, for to giue dif-
ficultie to the Ladders, if it happen that the enemy fill
them by (which a great armie may easily doe) the wall
remaineth taken of the enemy. Therefore purposing
to prouide to the one and the other foresaid inconueni-
ences, I beleue (sauiug allwaies better iudgement)
that the wall ought to, be made high, and the Ditch
within, and not without.

How a towne
wall ought to
be made.

The wall of a
towne ought
to be high, and
the ditch with
in, & not with-

Aa.ii.

This

The seventh Booke of

The thicknes
that a Towne
walle ought to
be of, & dis-
taunces be-
twene euery
flanker, and of
what breadth
& deapth the
ditch ought to
be.

How the ordi-
nance is plan-
ned, for the de-
fence of a
towne.

The nature of
the battaile.

This is the most strongest way of edification, that is made, for that it defendeth thee from the artillerie, and from Ladders, and it giueth not facilitie to the enemy, to fill vp the ditch: When the wall ought to be high, of that height as shall be thought best, and no lesse thicke, then two yardes and a quarter, for to make it more difficult to ruate. Moreover it ought to haue the toures placed, with distaunces of hundred and fiftie yardes betwene the one and the other: the ditch with in ought to be at least two and twentie yardes and a halfe broad, and nine deepe, and all the earth that is digged out, for to make the ditch, must be throwen towards the citie, and kept vp of a wall, that must be raised from the bottom of the ditch, and goe so high ouer the towne, that a man may be covered behinde the same, the which thing shall make the depth of the ditch the greater. In the bottome of the ditch, within euery hundred and fiftie yards, there should be a slaughterhouse, which with the ordinaunce, may hurt whom so euer should goe downe into the same: the great artillerie that defend the Citie, are planted behind the wall, that shutteth the ditch, because for to defende the vtter wall, being high, there cannot be occupied commodiously, other then small or meane peeces. If the enemy come to scale, the height of the first wall most easily defendeth thee: if he come with ordinaunce, it is conuenient for him to batter the vtter wall: but it being battered, for that the nature of the battery is, to make the wall to fall, towardes the part battered, the ruine of the wall commeth, (finding no ditch that receiveth and holdeth it,) to redouble the profunditie of the same ditch: after such sort, that to passe any further, it is not possible, finding a ruine that withholdeth thee, a ditch that letteth thee, and the enemies ordinaunce, that from the wall of the ditch, most safely killeth thee. Onely there is this remedie, to fill the ditch: the
which

which is most difficult to do, as well because the capacitie thereof is great, as also for the difficultie, that is in coming nere it, the wall being strong and concealed, betwene the which, by the reasons aforesaid with difficultie may be entered, having after to go up a breach through a ruine, which giveth thee most great difficultie, so that I suppose a citie thus builded, to be altogether invincible.

Baptiste. When there should be made besides the Ditch within, a Ditch also without, should it not be stronger.

Fabritio. It should be without doubt, but minding to make one ditch onely, mine opinion is, that it standeth better within then without.

Baptiste. Would you, that water should be in the ditches, or would you have them drie?

Fabritio. The opinion of men herein be diuers, because the ditches full of water, saueeth thee from mines under ground, the ditches without water, maketh more difficult the filling of them: but I having considered all, would make them without water, for that they be more sure: For ditches with water, haue bene seene in the Winter to be frosen, and to make easy the winning of a citie, as it happened to Mirandola, when Pope Iulie besieged it: & for to saue me from mines, I would make it so deepe, that he that would digge lower, should find water. The Fortresses also, I would build concerning the ditches and the walles in like maner, to the intente they should haue the like difficultie to be wonne. One thing I will earnestly advise him, that defendeth a citie: and that is, that he make no Bulwarks without distant from the wall of the same: and another to him that buildeth the Fortresse, and this, that he make not any refuge place in them, in which he that is within, the first wall being lost, may retire: That which maketh mee to give the first coun-

A dry ditch is most surest.

An aduertisement for the building & defending of a Towne or Fortresse.

The seventh Booke of

Small fortref-
ses can not be
defended.

A town of war
or Fortresse
ought not to
haue in them
any retiring
places.

Cæsar Borgia.

saile is, that no man ought to make any thing, by mean
whereof, he may be driuen without remedie to lœse his
first reputation, the which losung, causeth to bee esteē-
med lesse his other doings, and maketh afraide them,
whom haue taken vpon them his defence, and alwaies
it shall chaunce him this, which I say, when there are
made Bulwarkes out of the towne, that is to be defen-
ded, because alwaies hee shall lœse them, litle thinges
now a daies, being not able to be defended, when they
bee subiect to the furie of ordinaunce, in such wise that
lesung them, they bee beginning and cause of his ruine.
When Genua rebelled against king Lewes of Fraunce,
it made certaine Bulwarkes a loft on those hilles,
which bee about it, the which so sone as they were lost
which was sodainly, made also the Citie to be lost. Con-
cerning the second counsaile, I affirme nothing to bee
to a ffortresse more perillous, then to be in the same re-
fuge place, to be able to retire: Because the hope that
men haue thereby, maketh y they lœse the vtter warde,
when it is assaulted: & that lost, maketh to be lost after
all the ffortresse. ffor insample there is fresh in remem-
braunce, the losse of the ffortresse of Furlye, when Ca-
therin the Countesse defended it against Cæsar Borgia,
sonne to Pope Alexander the vi. who had conducted the-
ther y armie of the king of Fraunce: the same ffortresse,
was all full of places, to retire out of one into an other:
for that there was first the keepe, from the same to
the ffortresse, was a ditch after such sort, that they
passed ouer it by a draw Bridge: the ffortresse was
dyuided into thre parts, and euery part was deuī-
ded from the other with Ditches, and with water,
and by Bridges they passed from the one place to the o-
ther: wherefore the Duke battered with his artillerie,
one of the partes of the ffortresse, and opened part
of the wall: ffor which cause Maister Iohn Casale,
which was appointed to that Warde, thought not
god

god to defend that breach, but abandoned it for to retire himselfe into the other places: so that the Dukes men hauing entered into that part without incounter, in a sodaine they gotte it all: for that the Dukes men became Lordes of the bridges, which went from one place to another. They lost then this Fortresse, which was thought inuincible, through two defaultes, the one for hauing so many retiring places, the other, because euerie retirynge place, was not Lord of the bridge thereof. Therefore, the naughtie builded Fortresse, and the litle wil dome of them that defended it, caused shame to the noble enterprise of the countesse, who had thought to haue abidden an army, which neither the king of Naples, nor the Duke of Milaine would haue abidden: and although his inforcements had no good ende, yet notwithstanding he got that honour, which his valiantnesse had deserued: The which was testified of many Epigrames, made in those dayes in his prayse. Therefore, if I should haue to build a Fortresse I would make the walles strong, and the ditches in the manner as we haue reasoned, nor I would not make therein other, the houses to inhabite, and those I would make weake and low, after such sorte that they should not let him that should stand in the midst of the market place, the sight of all the wall, to the intent that the Captayne might see with the eye, where he may succour: and that euerie man should vnderstand, that the wall and the ditch being lost, the fortresse were lost. And yet when I should make any retiring places, I would make the bridges deuided in such wise, that euerie part should be Lord of the bridges of his side, ordaining, that they should fall vpon postes, in the midst of the ditch.

The causes of
the losse of Fort-
resse of Fur-
lie, that was
thought inuin-
cible.

How houses
that are in a
towne of war
or fortresse
ought to be
builded.

Baptiste. You haue said that little thinges now a daies can not be defended, and it seemed vnto mee to haue vnderstood the contrarie, that the lesser
: that

The seventh Booke of

that a thing were, the better it might be defended.

The fortifying
of the entrance
of a Towne.

Frabritio. You have not understode well, because that place cannot be now a daies called strong, where he that defendeth it, hath not space to retire with new ditches, and with new fortifications, for that the force of the ordinance is so much, that he that trusteth vpon the warde of one wall and of one fortification onely, is deceiued: and because the Bulwarkes (minding that they passe not their ordinary measure, for that then they should be townes and Castles) be not made, in such wise that men may haue space within them to retire, they are lost straight way. Therefore it is wisdome to let alone those Bulwarkes without, and to fortifie the entrance of the towne, and to couer the gates of the same with tourninges after such sort, that men cannot go in nor out of the gate by right line: and from the tourninges to the gate, to make a ditch with a bridge. Also they fortifie the gate, with a Percullis, for to be able to put therein their men, when they be issued out to fight, and hapning that the enemies pursue them, to auoide: that in the mungling together, they enter not in with them: and therefore these be vsed, the which the antiquitie called Cattarratte, the which being let fall, exclude the enemies, and saue the friends, for that in such a case, men can do no good, neither by bridges nor by a gate, the one and the other being occupied with preece of men.

Baptiste. I haue seene these Perculleses that you speake of, made in Almaine of little quarters of wood after the fashion of a grate of yron, and these perculleses of curs, be made of planches all masliue: I would desire to vnderstand whereof groweth this difference, & which be the strongest.

Frabritio. I tell you agayne, that the maners and orders of the warre, through out all the world; in respect to those of the antiquitie, be extinguished
and

and in Italye they be altogetger lost, for if there bee a thing somewhat stronger then ordinarie, it groweth of the insample of other countries. You might haue vnderstode, and these other may remember, with how much debilitie before, y^e king Charles of Fraunce in the yære of our saluation a thousand CCCC. xliiii. had passed into Italye, they made the batelmentes not halfe a yard thicke, the loopes, and the flankers were made with a litle opening without, and much within, and with many other faultes which not to be tedious I will let passe: for that casely from thynne battelments the defence is taken away, the flankers builded in the same maner, most easylie are opened: Now of the Frenchemen is learned to make the battelment large and thicke, and the flankers to bee large on the part within, and to dralve together in the middelt of the wall, and then again to ware wider vnto the vttermost part without: this maketh that the ordinaunce hardly can take away the defence. Therefore the Frenchmen haue, manye other deuises like these, the which because they haue not bene seene of our men, they haue not bene considered. Among which, is this kinde of perculles made like vnto a grate, the which is a great deale better then ours: for that if you haue for defence of a gate a massiue perculles as ours, letting it fall, you shutte in your menne, and you can not through the same hurt the enemie, so that he with ares, and with fire, may breake it downe safely: but if it bee made like a grate, you may, it being let downe, through those holes and through those open places, defend it with pikes, with crose bowes, and with all other kinde of weapons.

Battelments, ought to be large & thicke & the flankers large within.

Baptiste. I haue seene in Italye an other vse after the outlandish fashon, and this is, to make the carriage of the artillery, with the spokes of y^e wheele crooked towards the Arretræ. I would know why they

make

make

The ſeuenth Booke of.

make them ſo : ſeeming vnto mee that they be ſtronger when they are made ſtraight as thoſe of our wheelles.

Fabritio. Neuer beleue that the things that diſfer from the ordinarie waies, be made by chaunce : and if you ſhould beleue that they make them ſo , to ſhewe ſarper, you are deceiued : becauſe where ſtrength is neceſſarie , there is made no count of ſaynelleſſe : but all groweth, for that they be much ſurer and much ſtronger then ours . The reaſon is this : the cart when it is laden, either goeth euen, or leaning vpon the right, or vpon the left ſide : When it goeth euen , the wheelles equally ſuſtaine the waight , the which being equally deuided betwene them, doth not burden much, but leaning, it commeth to haue all the paſſe of the cariage on the backe of that wheele vpon the which it leaneth . If the ſpokes of the ſame be ſtraight they will ſone break: for that the wheele leaning , & ſpokes come alſo to leane, and not to ſuſtaine the paſſe by the ſtraightneſſe of them and ſo when the cart goeth euen , and when they are leaſt burdened , they come to be ſtrongeſt : when the Cart goeth awrye , and that they come to haue moſt paſſe, they be weakeſt . Euen the contrarie happeneth to the crooked ſpokes of the French Cartes , for that when the Cart leaning vpon one ſide pointeth vpon them: becauſe they be ordinary crooked, they come then to be ſtraight, and to be able to ſuſtaine ſtrongly all the payſe, where when the Cart goeth euen , and that they be crooked , they ſuſtaine it halfe : but let vs tourne to our citie and ſtrefreſſe . The Frenchmen vſe alſo for more ſafegard of the gates of their townes , and ſo to be able in ſieges more eaſily to conuey and ſet out men of them , beſides the ſaid thinges, an other deuſe, of which I haue not ſene yet in Italic any inſample : and this is , where they raiſe on the out ſide from the ende of the draw bridge two poſtes , and vpon either
of

of them they ioyne a beame, in such wise that the one halfe of them comes ouer the bridge, the other halfe with out: then all the same part that cometh without, they ioyne together with small quarters of woodde, the which they set thicke from one beame to an other like vnto a grate, and on the part with in, they fasten to the ende of either of the beames a chaine: then when they will shut the bridge on the out side, they slacke the chaines, and let downe all the same part like vnto a grate, the which comming downe, shutteth the bridge, & when they will open it, they draw the chaines, and the same cometh to rise vp, and they may raise it vp so much that a man may passe vnder it, and not a horse & so much that there may passe horse and man, and shut it againe at ones, so: that it falleth and riseth as a window of a battlement. This deuise is more sure than the Parculles, because hardly it may be of the enemye lette in such wise, that it fall not downe, falling not by a right line as the Parculles, which easily may be underpropped. Therefore they which will make a citie, ought to cause to be ordained all the saide things: & moreover about the wall, there would not be suffered any ground to be filled within a mile thereof, nor any wall made, but should be all champaine, where should be neither ditch nor bancke, neither tree nor house, which might let the sight, and make defence for the enemye that incampeth.

Neither tree, ditch, wall, bul-
lege, nor any
kinde of edifi-
cation, ought
to be within a
mile of a town
of warre.

And note, that a Towne, which hath the Note.
ditches without, with the bankes higher then the ground, is most weake: for as much as they make defence to the enemye, which assaulteth thee, and letteth him not hurt thee, because easily they may be opened, and geue place to his artillerie: but let vs passe into the Towne. I will not lose so much time in shewing you how that besides the foresaid thinges, it is requisite to haue provision of victuals, and wherewith to
Bb.ii. fight

The seventh Booke of

The prouision
that is meete
to be made for
the defence of
a Towne.

fight, for that they be things that euery man vnderstandeth, and without them, all other prouision is vaine: and generally two things ought to be done, to prouide and to take the commoditie from the enemy that hee auaille not by the things of thy countrey: therefore the straw, the beastes, the graine, which thou canst not receiue into house, ought to be destroyed. Also hee that defendeth a Towne, ought to prouide that nothing be done tumultuously and disorderly, and to take such order, that in all accidents euery man may know what hee hath to doe.

The order that ought to be taken is thus, that the women, the olde folkes, the children and the impotent, be made to keepe within doores, that the Towne may be left free to younge and lusty men, whom being armed, must be distributed for the defence of the same, appointing part of them to the wall, part to the gates, part to the principal places of the Citie, for to remedy those inconueniences, that might grow within: an other part must not be bound to any place, but be ready to succour all, need requiring: and the thing being ordained thus, with difficultie tumult can grow, which may disorder thee. Also I will that you note this, in the besieging and defending of a Citie, that nothing giueth so much hope to the aduersary to be able to winne a Towne, as when hee knoweth that the same is not accustomed to see the enemy: for that many times for feare onely without other experience of force, cities haue been lost: Therefore a man ought, when hee assaulteth a like Citie, to make all his ostentations terrible. On the other part hee that is assaulted, ought to appoint to the same part, which the enemy fighteth against, strong men and such as opinion maketh not asfraid, but weapons onely: for that if the first proue turne vaine, it increaseth boldnesse to the besieged, and then the enemy is constrained to ouercome them with
vertue

What incou-
rageth y^e ene-
mie most that
besiegeth a
Towne.

What he that
besiegeth and
he that defen-
deth ought to
do.

vertue and reputation. The instrumentes wherewith the antiquitie defended Townes, were manie: as Balistes, Onagris, Scorpions, Arcubalistes, Fustiballs, Slings, and also those were many with which they gaue assaultes. As Arrieti, Towers, Husculi, Plutai, Tiney, Falci, Testudeni, in steede of which things bee nowe a dayes the ordinance, the which serue him that besiegeth, and him that defendeth: and therfore I will speake no further of them: But let vs returne to our reasoning, and let vs come to particular offences. They ought to haue care not to bee taken by famine, and not to bee overcome through assaultes: concerning famine, it hath bene told, that it is requisite before y^e siege come to be well prouided of victuals. But when a Towne through long siege, lacketh victualles, sometimes hath beene seene vsed certaine extraordinary wayes to be prouided for their friends, whom would saue them, in especiall if through the middest of the besieged Citie there runne a riuer, as the Romanes victualed their Castle called Casalino besieged of Anniball, whom being not able by the riuer to send them other victual then Futs, whereof casting in the same great quantitie, the which carried of the riuer, without being able to bee letted, fedde long time the Cassalinians. Some besieged, for to shew vnto the enemy, that they haue graine more then enough and for to make him to dispaire, that hee cannot, by famine overcome them, haue cast bread out of the Gates, or given a Bullocke graine to eate, and after haue suffered the same to bee taken, to the intent that kilde and sound full of graine, might shew that abundance which they had not. On the other part excellent Captaines haue vsed sundry wayes to weary the enemy.

Fabius suffered them whom he besieged, to sow their fieldes, to the intent they should lacke the same corne, which they sowed.

Aduertisements
for a besieged
Towne.

How the Romanes
vittualed
Casalino, be-
sieged of Ani-
ball.

A policie for
the besieged.

A policie of
Fabius, in be-
sieging of a
Towne.

The seventh booke of

A policie of
Dionisius in
besieging of a
Towne.

Dionisius being in campe at Reggio, sained to minde to make an agreement with them, and during the practice thereof, he caused himselfe to be provided of their victualls, and then when he had by this meane got from them their graine, he kept them straight and smashed them.

How Alexander
wan Leucadia.

Alexander Magnus minding to winne Leucadia overcame all the Castells about it, and by that meanes driving in the same Citie a great multitude of their owne countrie men, furnished them.

The besieged
ought to take
heed of y^e first
brunt.

Concerning the assaultes, there hath bene told that chiefly they ought to beware of the first brunt, with which the Romanes got often times many townes, assaulting them sodainly, and on euery side: and they called it, *Aggredi urbem corona*. As Scipio did when hee wan new Carthage in Hispaine: the which brunt if of a towne it bee withstode, with difficultie after will bee overcome: and yet though it should happen y^e the enemy were entred into the citie, by overconning the wall, yet the townes men haue some remedie, so they forsake it not: for as much as many armies through entring into a towne, haue bene repulced or slaine: the remedie is, that the townes men do keepe themselves in high places, and from the houses, and from the towers to fight with them: the which thing, they y^e haue entered into y^e citie, haue deuised to overcome in two maners: y^e one with opening the gates of the citie, and to make the way for the towns men, that they might safely flee: the other with sending forth a proclamation, that signifieth that none shall be hurt but the armed, & to them that cast their weapons on the ground, pardon shall be graunted: the which thing hath made easie the victory of many Cities.

The remedie
that townes
men haue when
the enemies
are entered
into the town.

How to make
the townes men
yeeld.

How townes
or cities are
easily wonne.

Besides this, the Cities are easy to be wonne, if thou come vpon them vnawares: which is done being with thy armie farre of, after such sort, that it be not

not beleued, either that thou wilt assault them, or that thou canst do it, without coming openly, because of the distance of the place: wherefore, if thou secretly and speedely assaulte them, almost alwaies it shall follow, that thou shalt get the victorie. I reason unwillingly of the thinges succeeded in our tyme, for that to mee and to mine, it should be a burthen, & to reason of other, I cannot tell what to saye: notwithstanding, I cannot to this purpose but declare, the insample of Caesar Longia, called Duke Valentine, who being at Nocera with his menne, under colour of going to besiege Camerino, tourned towards the state of Urbino, and got a state in a day and without any paine, the which an other with much tyme and cost, should scant haue gotten. It is conuenient also to those, that be besieged, to take heed of the deceiptes, and of the policies of the enemye, and therefore the besieged, ought not to trust to any thing, which they see the enemye do continually, but let them beleue alwaies, that it is under deceipt, and that he can to their hurt vary it. Domitio Caluino besieging a towne, used for a custome to compasse aboute euerye day, with a good part of his men, the wall of the same: whereby the Townes men, beleuing that he did it for exercise, slackted the Warde: wherof Domitius being aware, assaulted and overcame them.

Certaine Captaines vnderstanding, that there should come aide to the besieged, haue apparreled their Souldiours, vnder the Ansigne of those, that should come, and being let in, haue gotte the Towne.

Simon of Athens, set fire in a night on a Temple, which was out of the Towne, wherefore the Townes men going to succour it, left the towne in pray to the enemye. Some haue slayne those, which from the besieged Castle, haue gone a foraging, and haue apparreled their Souldiours, with the apparel of the foragers, whom after haue gotte the Towne. The ancient

How Duke Valentine got the state of Urbino.

The besieged ought to take heed of deceipts & policies of the enemye.

How Domitio Caluino won a towne.

A policie to get a towne.

How Simon of Athens won a towne.

A policie to get a towne.

The seventh booke of

How Scipio
got certaine
Castles in A-
frica.

cient Captaines, haue also vsed diuers waies, to de-
stroy the Garrison of the towne, which they haue sought
to take. Scipio being in Africa, and desiring to get cer-
taine Castles, in which were put the Garrisons of Car-
thage, he made many times, as though he would assault
them, albeit, he fained after, not onely to abstaine, but
to goe away from them for feare: the which Anibal be-
leeuing to be true, for to pursue him with greater force,
and for to be able more easily to oppresse him, drew
out all the garrisons of them: The which Scipio know-
ing, sent Massimilla his Captayne to ouercome them.

How Pirrus
wonne & chief
citie of Sela-
uonie.

Pirrus making warre in Sclauonie, to the chiefe
Citie of the same countrey, where were brought many
menne in Garrison, fained to dispayre to be able to
winne it, and turning to other places, made that the
same for to succour them, emptied it selfe of the ward,
and became easie to be wonne. Many haue corrupted
the water, and haue tourned the riuers an other way
to take Townes. Also the besieged, are easily made
to yeelde themselves, making them afraied, with sig-
nifying vnto them a victorie gotten, or with new aides,
which come in their disfauour. The olde Captaines
haue sought to get townes by treason, corrupting some
within, but they haue vsed diuers meanes. Some
haue sent a man of theirs, which vnder the name
of a fugitiue, might take authoritie and trust with
the enemies, who after haue vsed it to their profit.

A policie to
get a towne.

How the be-
sieged are
made to yeld.

How to get a
Towne by
treason.

Some by this meanes, haue vnderstood the maner of
the watch, and by meanes of the same knowledge,
haue taken the Towne. Some with a Cart, or with
Beames vnder some colour, haue letted the gate, that
it could not be shutte, and with this way, made the
entrie easie to the enemy. Aniball perswaded one, to
giue him a Castle of the Romanes, and that hee should
sayne to go a hunting in the night, making as though
hee could not goe by day, for feare of the enemies, and
tour-

A policie of
Anibal for the
betraying of
a Castle.

tourning after with the Amison, should put in with him certaine of his men, and so killing the watchmen, should giue him the gate. Also the besieged are beguiled, with drawing them out of the Towne, and going away from them, sayning to flie when they assault the. And many (among whom was Aniball) haue for no other intent, let their Campe to be taken, but to haue occasion to gette betwene them and home, and to take their Towne. Also, they are beguyled with faining to departe from them, as Formion of Athens did, who hauing spoyled the countrie of the Calcidenians, receiued after their ambassadours, filling their Citie with faire promises, and hope of safetie, vnder the which as simple men, they were a litle after of Formion oppressed. The besieged ought to beware of the men, which they haue insupected amongst them: but some times they are wont, as well to assure themselues with deserte, as with punishment. Marcellus knowing how Lucius Banciaus a Polane, was tounred to fauour Aniball, so much humanitie and liberalitie, he bled towarde him, that of an enemie, he made him most friendly. The besieged ought to vse more diligence in the ward, when the enemie is gone from them, then when he is at hand.

How the besieged may be beguiled.

How Formion ouercame the calcidenians.

What the besieged must take heede of.

Liberalitie maketh enemics friends.

The diligence that the besieged ought to vse in their watch and warde.

And they ought to warde those places, which they thinke, that may be hurt least: for that manie towne haue bene lost, when the enemie assaulteth it on the same part, where they beleue not possible to be assaulted. And this deceit groweth of two causes, either for the place being strong, and to beleue it is inuincible, or through craft being bled of the enemie, in assaulting them on one side with fained laroms, and on the other without noise, and with very assaultes in dede: and therefore the besieged, ought to haue great aduertisemet, and aboue all thinges at all tines, and in especially in the night to make good watches to be kept on the walles, and not onely to appoint men, but Dogges, and such

Ec.

flerle

The seventh Booke of

fierse *Spastines*, and lively, the which by their sent may descrie the enemy, and with barking discover him: and not Dogges onely, but Oxen haue bene seene to haue saued a citie, as it happened to Rome, when the Frenchmen besieged the Capitoll.

An order of
Alcibiades
for the dew
keeping of
watch & ward.

Alcibiades so; to se, whether the warde watched, Athenes being besieged of the Spartaynes, ordayned that when in the night, he should lift by a light, all the warde should lift by likewise, constituting punishment to him that obserued it not.

Heracles of Athens killed a watchman, which slept, saying, that he left him as he found him. Those that haue bene besieged, haue vled diuers meanes, to sende aduise to their friends: and minding not to sende their message by mouth, they haue wrytten letters in Cifers, and hidden them in sundrie wise: the Cifers be according, as pleaseth him that ordaineth them, the manner of hiding them is diuers. Some haue wrytten within y scarberd of a sword: Other haue put the letters in an unbaked lofe, & after haue baked the same, and giuen it for meate to him that caried them. Certain haue hidden the, in the secretest place of their bodies: other haue hidden them in the collour of a Dog, that is familiar with him, which carrieth them: Some haue wrytten in a letter ordinary things, & after betwene the one line & the other, haue also writt with water, that wetting it or warming it after, the letters should appeare. This waie hath ben most politickely obserued in our time: where some minding to signifie to their friendes inhabiting within a towne, thinges to be kept secret, & minding not to trust any person, haue sent common matters wrytten, according to the common vse and enterlined it, as I haue saide aboue, and the same haue made to be hanged on the gates of the Temples, the which by counterfignes being knowne of those, vnto whome they haue bene sent, were taken of and read: the which way

The secret
conueighing
of letters.

is most politique, because he that carrieth them may bee beguiled, and there shall happen him no perill. There be most infinite other waies, which euery man may by himselfe reade and finde: but with more facilitie, the besieged may be written vnto, then the besieged to their friendes without, for that such letters cannot bee sent, but by one, vnder colour of a fugetue, that cometh out of a Towne, the which is a dangerous and perillous thing, when the enemy is any whit craftie: But those that sende in, he that is sent, may vnder many colours, goe into the campe that besiegeth, and from thence taking conuenient occasion, may leape into the towne: but let vs come to speake of the present winning of Townes. I say, that if it happen, that thou be besieged in the Citie, which is not ordained with ditches within, as a litle before we shewed, to mind that the enemy shall not enter through the breach of the wall, which the artillerie maketh: because there is no reines to let the same from making of a breach, it is therefore necessary for thee, whilst the ordinaunce battereth, to cast a ditch within the wall which is battered, and that it be in breadth at least two and twentie yardes and a halfe, and to throw all the same that is digged towards the Towne, which may make a bancke, and the ditch more deeper: and it is conuenient for thee, to sollicitate this worke in such wise, that when the wall falleth, the ditch may be digged at least, foure or fve yardes in depth: the which ditch is necessarie, while it is a digging, to shutte it on euery side with a slaughterhouse: and when the wall is so strong, that it geueth thee tyme to make the ditch, and the slaughter houses, that battered part, cometh to be much stronger, then the rest of the citie: for that such fortification, cometh to haue the forme, of y ditches which we deuised within: but when the wall is weaker, and that it geueth thee not tyme, to make like fortifications, then strength &

The defence
againsta
breach.

The seventh Booke of

baliantnesse must be shewed, setting against the enemies armed men, with all thy force. This manner of fortification was obserued of the Pisans, when you besieged them, and they might do it, because they had strong walles, which gaue them time, the earth being soft and moist mete to raise by banks, and to make fortifications: where if they had lacked this commoditie, they should haue lost the Towne. Therefore it shall be alwaies prudently done, to prouide alsoe hand making ditches within the Citie, and throughout all y^e circuite thereof, as a litle before we deuised: for that in this case, the enemy may safely be taried for at leasure, y^e fortifications being readie made. The antiquity many times got townes, with muining vnder ground in two maners, either they made a way vnder ground secretly, which risse in the towne, and by the same entered, in which maner the Romanes toke the citie of Aleienti, or with the muining, they ouerthrew a wall, and made it ruinate: this last way is now a dayes most strong, & maketh that the cities placed high, be most weake, because they may better be vnder ruined: & putting after in a Caue of this Gunne powder, which in a moment kindleling, not onely ruinateth a wall, but it openeth the hilles, and vtterly dissolueth the strength of them.

How the antiquitie got townes by muining vnder ground.

The remedie against caues or vnder muinings.

The remedie for this, is to build in the plaine, and to make the Ditch that compasseth thy Citie, so deepe, that the enemy may not digge lower then the same, where he shall not finde water, which onely is enemy to the Caues: for if thou be in a towne, which thou defendest on a high ground, thou canst not remedie it otherwise, then to make within thy walles many deepe Welles, the which be as downers to the same Caues, that the enemy is able to ordaine against thee. An other remedie there is, to make a Caue against it, when thou shouldest be alware where he muineth, the which way easily hindereth him, but difficultlie

it is forescene, being besieged of a craftie enemye. For that is besieged ought, about all thinges to haue care, not to be oppressed in the time of rest: as is after a battaile fought, after the watch made, which is in the Morning at breake of the day, and in the Evening betwene day and night, and about all, at meale times: in which time many towne haue bene wonne, and armies haue bene of them within ruinated: therefore it is requisite with diligence on all parts, to stand allwaies garded, and in a good part armed. I will not lacke to tell you, how that, which maketh a Citie or a campe difficult to bee defended, is to be driuen to keepe sundred all the force that thou hast in them, for that the enemye being able to assault thee at his pleasure altogether, it is conuenient for thee on euery side, to garde euery place, and so he assaulteth thee with all his force and thou with part of thine defendest thee. Also, the besieged may be overcome altogether, he without cannot be, but repulsed: wherefore many, whom haue bene besieged, either in a Campe, or in a Towne, although they haue bene inferiour of power, haue issued out with their men at a sodaine, and haue overcome the enemye. This Marcellus of Nola did: this did Caesar in Fraunce, where his Campe being assaulted of a most great number of Frenchmen, and seeing himselfe not able to defend it, being constrained to deuide his force into many parts, and not to be able standing within the listes, with violence to repulse the enemye: he opened the Campe on the one side, and turning towardes the same part with all his power, made so much violence against them, and with so much valiantnes, that he vanquished and overcame them. The constancie also of the besieged, causeth many times displeasure, and maketh afraid them that doe besiege. Pompei being against Caesar, and Caesars armie being in great distresse through famine, ther was brought of his bread to Pompei, whom seeing it made of

What care
the besieged
ought to haue

What maketh
a citie or campe
difficulte to be
defended.

By what
meanes they
that besiege
are made a-
fraide.

The seventh Booke of

Honour got
by constancie.

grasse, commaunded, that it should not be shewed vn-
to his armie, least it should make them afraid, seeing
what enemies they had against them. Nothing caused
so much honour to the Romanes in the warre of A-
niball, as their constancie: for as much as in what so
euer enuious, and aduerser fortune they were troubled,
they neuer demanded peace, they neuer made any
signe of feare, but rather when Aniball was about
Rome, they sold those fieldes, where hee had pitched his
Campe, dearer then ordinarie in other times should
haue bene sold: and they stode in so much obstinacie in
their enterprises, that for to defend Rome, they would
not raise their campe from Capua, the which in the
very same time that Rome was besieged, the Romanes
did besiege.

I know that I haue tolde you of many thinges,
the which by your selfe you might haue vnderstood, and
considered, notwithstanding I haue done it (as to day
also I haue told you) for to be able to shew you better
by meane thereof, the qualitie of this armie, and also
for to satisfie those, if there be any, whom haue not had
the same commoditie to vnderstand them as you. For
me thinkes that there resteth other to tell you, then cer-
taine generall rules, the which you shall haue most fa-
milier which be these.

Rules of warre

The same that helpeth the enemy, hurteth thee: and
the same that helpeth thee, hurteth the enemy.

He that shall be in the warre most vigilant to obserue
the deuises of the enemy, and shall take most paine to
exercise his armie, shall incurre least perills, and may
hope most of the victorie.

Seuer conduct thy men to fight the field, if first thou
halt not confirmed their mindes & knowest them to bee
without feare, & to be in good order: for thou oughtest ne-
uer to enterprise any dangerous thing with thy soul-
diours, but when thou seest, that they hope to overcome.

It

It is better to conquere the enimie with famine, then with yron: in the victory of which, fortune may do much more than valiantnesse.

No purpose is better then that, which is hid from the enimie untill thou haue executed it.

To know in the warre how to vnderstand occasion, and to take it, helpeth more then any other thing.

Nature breedeth fewe strong men, the industrie and the exercise maketh many.

Discipline may do more in warre, then furie.

When any depart from the enemies side for to come to serue thee, when they be faithfull, they shalbe vnto thee alwaies great gaines: for that the power of the aduersaries are more deminished with the losse of them, that runne away, then of those that be slaine, although that thy name of a fugitiue be to new friendes suspected, to old odious.

Better it is in pitching the felds, to reserue behind the first front ayde ynough, then to make the front bigger to disperse the souldiours.

He is difficultly overcome, which can knowe his owne power and the same to the enimie.

The valiauntnesse of the souldiours auayleth more then the multitude.

Sometymes the situation helpeth more then the valiantnesse.

New and sudden things, make armies afraied.

Slow and accustomed thinges, be little regarded of them. Therefore make thy armie to practise & to know with small fightes a new enimie, before thou come to fight the felds with him.

He that with disorder followeth the enimie after that he is broken, will do no other, then to become of a conquerour a loser.

He that prepareth not necessarie victuals to liue vpon, is overcome without yron.

He

The seventh Booke of

He that trusteth more in horsemen then in footemen, or more in footemen then in horsemen, must accomodate himselfe with the situation.

When thou wilt see if in the day there bee comen anie spie into the Campe, cause euerie man to go to his lodging.

Chaunge purpose, when thou perceiuest that the enemy hath foreseene it.

How to consulte.

Consult with many of those things, which thou oughtest to do, the same that thou wilt after do, conferre with few.

Souldiours when they abide at home, are maintayned with feare and punishment, after when they are lead to the warre, with hoppe and with reward.

Good Captaines come neuer to fight the feld, except necessitie constraineth them, and occasion call them.

Cause that the enemies know not, how thou wilt order thy army to fight, and in what so euer maner that thou ordainest it, make that the first band may be rescued of the second and of the third.

In the fight neuer occupie a battaile to any other thing, then to the same, for which thou hast appointed it if thou wilt make no disorder.

The sodaine accidentes, with difficultie are remedied: those that are thought vpon, with facilitie.

What things are y strength of the warre.

Men, yron, money, and bread, bee the strength of the warre, but of these foure, the first two be most necessary: because men and yron, finding money and bread: but bread and money finde not men and yron.

The vnarmed rich man, is a bootie to the poore souldiour.

Accustome thy souldiours to dispise delicate living, and lacinious apparell.

This is as much as happeneth mee generally to remember you, and I know that there might haue bene sayde manie other things in all this my reasoning:

as should be, how and in how many kinde of waies the antiquitie ordered their bandes, how they apparelled them, and how in many other thinges they exercised them, and to haue ioyned here vnto many other particulars, the which I haue not iudged necessary to shew, as wel for that you your selfe may see them, as also for that my intent hath not bene to shew iust how the olde seruises of warre was appointed, but how in these daies a seruise of warre might be ordained, which should haue more vertue then the same y^e is vsed. Wherefore I haue not thought good of the auncient thinges to reason other, then that, which haue iudged to such introduction necessary. I know also that I might haue delated more vpon the seruise on horsebacke, and after haue reasoned of the warre on the Sea: for as much as he that distinguisheth the seruise of warre, sayeth, how there is an armie on the sea, and of the land, on foote, & on horsebacke. Of that on the sea, I will not presume to speake, for that I haue no knowledge thereof: but I will let the Venetians, and the Venecians speake thereof, whom with like studies haue heretofore done great thinges.

Also of horses, I will speake no other, then as afore I haue said, this part being (as I haue declared) least corrupted. Besides this, the footemen being well ordained, which is the puissance of the armie, good horses of necessitie will come to be made.

Onely I counsell him that would ordaine the exercise of armes in his owne countrie, and desireth to fill the same with good horses, that he make two provisions: the one is, that he distribute Mares of a good race through his dominion, and accustom his menne to make choise of coltes, as you in this countrie make of Calues and Mules: the other is: that to thentent the excepted might finde a byer, I would prohibit that no man should keepe a Mule except hee would keepe a hoyle: so that he that would keepe but one beast to

Prouisions
that may be
made to fill a
Realme full of
good horses.

Ed.

ride

The seventh Booke of

ride on; should be constrained to keepe a horse: & moreouer that no man should weare fine cloath except hee which doth keepe a horse: this order I vnderstand hath bene deuised of certaine Princes in our time, whome in short space haue thereby, brought into their country an excellent number of good horses. About the other thinges, as much as might be looked for concerning horse, I remit to as much as I haue said to day, and to that which they vse. Peradventure also you would desire to vnderstand what conditions a Captaine ought to haue: whereof I shall satisfie you most briefly: for that I cannot tell how to chuse any other man then the same, who should know how to do all those things which this day hath ben reasoned of by vs: the which also should not suffice, when he should not know how to deuise of himselfe, for that no man without inuencion, was euer excellent in any science: and if inuencion causeth honour in other thinges, in this about all, it maketh a man honorable: for euerie inuencion is scene, although it were but simple, to be of writers celebrated: as it is scene where Alexander Magnus is praised, who for to remoue his Campe most secretly, gaue not warning with the Trumpette, but with a hatte vpon a Lance. And was praised also for hauing taken order that his souldiours in buckeling with the enemies, should kneele with the left legge, to be able more strongly to withstand their violence: the which hauing given him the victory, it got him also so much praise, that all the images, which were erected in his honour, stood after the same fashion. But because it is time to finish this reasoning, I will tourne againe to my first purpose, and partly I shal auoide the same reproch, wherein they vse to condemne in this towne, such as knoweth not when to make an ende.

The know-
ledge y^e a Cap-
taine ought to
haue.

The auctor
retourneth to
his first pur-

If you remember Cosimus, you told me, that I
bearing of one side an exalter of the antiquitie, and a dis-
praiser

praiser of those, which in waightie matters imitated them not, and of the other side, I hauing not in y^e affairs of warre, wherein I haue taken paine, imitated them, you could not perceiue the occasion: wherunto I answered, how that men which will do any thing, must first prepare to know how to do it, for to bee able, after to ble it, when occasion permitteth: whether I do know how to bring the seruise of warre to the auncient manners or no, I wil be iudged by you, which haue heard me vpon this matter long dispute: wherby you may know how much time I haue consumed in these studies: and also I beleene that you may imagine, how much desire is in me to bring it to effect: the which whether I haue bene able to haue done, or that euer occasion hath bene giuen me, most easie you may conieure: yet for to make you more certaine and for my better iustificatiō, I will also alledge the occasions: and as much as I haue promised, I wil partly performe, to shew you the difficultie and the facilitie, which bee at this present in such imitations.

pose, and make
eth a little
discourse to
make an ende
of his reason-
ing.

Therefore I say, how that no neede that is done now a dayes among men, is more easie to be reduced into the auncient manners, then the seruise of warre: but by them onely that bee Princes of so much state, who can at least gather together of their owne subiects 15. or twentie thousand young men: otherwise, no thing is more difficulte, then this, to them which haue not such commoditie: and for that you may the better vnderstand this part, you haue to know, how that there be of two condicions, Captaynes to be praysed: The one are those, that with an armie ordained through the naturall discipline thereof, haue done great thinges, as were the greater part of the Roman Citizens, and such as haue lead armies, the which haue had no other paine, then to maintaine them God, and to see them guyded safely: the other are

A prince may
easily bring to
intiere per-
fectiō the ser-
uise of warre.

Two sortes of
captaynes
worthie to be
praised.

The seventh Booke of

they, which not onely haue had to overcome the enemy, but before they come to the same, haue bene constrained to make good and well ordered their armie: who without doubt deserue much more praise, then those haue deserued, which with old armies, and good, haue valiantly wrought. Of these, such were Pelopida, and Epaminonda, Tullus Hostilius, Philip of Macedony father of Alexandar, Cyrus king of the Persians, Gracchus a Romane: they all were driuen first to make their armies good, and after to fight with them: they all could do it, as well through their prudence, as also for hauing subiectes whom they might in like exercises instruct: nor it should neuer haue bene otherwise possible, that any of them, though they had bene neuer so good and full of all excellencie, should haue bene able in a straunge countrie, full of men corrupted, not vsed to any honest obedience, to haue brought to passe any laudable worke. It suffiseth not then in Italie, to know how to gouerne an armie made, but first it is necessary to know how to make it, and after to know how to commaund it: and to do these thinges, it is requisite they be those Princes, whom hauing much dominion, and subiectes ynough, may haue commodity to do it: of which I cannot be, who neuer commaunded, nor can not commaund, but to armies of straungers, and to men bound to other and not to mee: in which if it be possible, or no, to introduce any of those things that this day of mee hath bene reasoned, I will leaue it to your iudgement. Albeit when could I make one of these souldiours which now a daies practise, to weare more armour then the ordinarie, and besides the armour, to beare their owne meate for two or three dayes, with a mattocke? when could I make them to digge or keepe them euery day many howers armed, in fained exercises, for to be able after in the very thing in daede to p[er]cuatle? When would they abstaine from playe, from
laciut

laciuiouſneſſe, from ſwearing, from the inſolence, which euery day they commit : When would they be reduced into ſo much diſcipline , into ſo much obedience and reuerence, that a tree full of apples in the middeſt of their Campe, ſhould be found there and left vntouched ? As is red , that in the auncient armies manie times happened . What thing may I promiſe them, by meane where of they may haue me in reuerence , to loue or to feare, when the warre being ended , they haue not any more to doe with me ? Whereof may I make them aſhamed, which be borne and brought vp without ſhame ? Why ſhould they be ruled by me who know me not ? By what God or by what ſaintes may I make them to ſwear? By thoſe y they worſhip , or by thoſe that they blaſpheme ? Who they worſhip I know not any : but I know well they blaſpheme all . How ſhould I beleeue that they will keepe their promiſe to them, whom euery howe they diſpiſe ? How can they that diſpiſe God, reuerence men ? Then what good faſhion ſhould that bee, which might be expreſſed in this matter ?

And if you ſhould alledge vnto me that Swiſſers and Spaniardes be good ſouldiours , I would confeſſe vnto you , how they be farre better then the Italians : but if you note my reaſoning , and the maner of proceeding of both , you ſhall ſee , how they lacke many thinges to ioine to the perfection of the antiquitie.

And how the Swiſſers be made good of one of their naturall vſes cauſed of ; that , which to day I told you : thoſe other are made good by meane of a neceſſitie : for that ſeruing in a ſtraunge countrie , and ſeeming vnto them to be conſtrained either to die , or to overcome, they perceiuing to haue no place to ſlie , do become good: but it is a goodneſſe in many partes faultie : for that in the ſame there is no other good , but that they bee accuſtomed to carpe the enemy at the Pike and ſwords point : no; that , which they lacke , no man ſhould

The seventh booke of

be mee to teach them, and so much the lesse, hee that could not speake their language.

The author
excuseth the
people of Ita-
lie to the great
reproch of
their princes
for their igno-
rance in the
affaires of
warre.

But let vs tourne to the Italians, who for hauing not had wise Princes, haue not taken any good order: and for hauing not had the same necessitie, which the Spaniards haue had, they haue not taken it of themselves, so that they remaine the shame of the world: and the people be not to blame, but onely their Princes, who haue bene chastised, and for their ignorance haue bene iustly punished, losing most shamefully their states, without shewing any vertuous ensample. And if you will see whether this that I saye be true: consider how many warres haue bene in Italy since the departure of king Charles to this day, where the warre being wont to make men warlyke and of reputation, these the greater and fierfer that they haue bene, so much the more they haue made the reputation of the members and of the heads thereof to be lost. This proueth that it groweth, that the accustomed orders were not nor be not good, and of the newe orders, there is not any which haue knowen how to take them. Nor neuer beleue that reputation wil be gotten, by the Italians weapons, but by the same waie that I haue shewed, & by meanes of them, that haue great states in Italie: for that this forme may be impressed, in simple rude men, of their owne, and not in malicious, ill brought vp, and strangers. Nor there shall neuer be found any good mason, which will beleue to be able to make a faire image of a peece of Marble ill hewed, but verie well of a rude peece.

A description
of v. volubnes
of the Italian
princes.

Our Italian Princes beleued, before they tasted the blowes of the outlandish warre, that it should suffice a Prince to know by writings, how to make a subtil answer, to write a goodly letter, to shewe in sayings, and in wordes, witte and promptnesse, to know how to canuas a fraude, to decke themselves with

with precious stones and gold, to sleepe and to eate with greater glozy then other: To keepe many lasciuious persons about them , to gouerne themselves with their subiects , couetously and proudly : To rote in idlenes, to giue the degrees of the exercise of warre , for good will, to dispise if any should haue shewed them any laudable waie , minding that their wordes should be answers of oracles: nor the sely wretches were not aware that they prepared themselves to be a pray to whome so euer should assaulte them . Whereby grew then in the thousand foure hundred and nintie and foure yere, the great feares, the sodaine flightes and y marueilous losses: and so thre most mighty states which were in Italie, haue bene diuers times sacked and destroyed. But that which is worse, is where those y remaine, continue in the very same error, and liue in the verie same disorder, & consider not, that those who in olde time would keepe their states, caused to be done these thinges, which of me hath bene reasoned, and that their studies were, to prepare y body to diseases, & the minde not to feare perills . Whereby grew that Caesar, Alexander, and all those men and excellent Princes in olde time, were the formost amongst the fighters, going armed on foote: and if they lost their state, they would lose their life, so that they liued and died vertuously . And if in them, or in part of them , there might be condemned to much ambition to reason of : yet there shall neuer be founde, that in them is condemned any tenderresse , or any thing that maketh men delicate and feeble : the which thing, if of these Princes were redde and beleued , it should be impossible, that they should not chaunge their forme of liuing, and their prouinces not to chaunge fortune . And for that you in the beginning of this our reasoning, lamented your ordinaunces , I saye vnto you, that if you had ordained it, as I afore haue reasoned, & it had giuen of it selfe no good experience , you might
with

Cesar and Alexander, were the formost in battaile.

The seventh booke of

The Venetians and the Duke of Ferrare began to haue reduced the waifare to the auncient maners.

He that despiseth the seruise of warre dispiseth his own wealth.

with reason haue bene griued therewith: but if it bee not so ordayned, and exercised, as I haue saide, it may be greued with you, who haue made a couterfaite thereof, and no perfect figure. The Venecians also, and the Duke of Ferrare, began it, and it followed it not, the which hath bene through their default, not through their minne. And therefore I assure you, that whosoener of those, which at this day haue states in Italic, shall enter first into this waie, shall be first, before any other, Lord of his Prouince, and it shall happen to this state as to the kingdome of the Macedonians, the which comming vnder Philip, who had learned the maner of setting armies in order of Epaminondas a Thebane, became with his order, and with these exercises (whilest the rest of Greece stode in idlenesse, and attended to respite commedes) so puissaunt, that he was able in fewe yerres to possesse it all, and to leaue such foundation to his sonne, that he was able to make himselfe, prince of all the worlde. He then that despiseth these studies, if he be a Prince, despiseth his Princedom: if he be a Citiezin his Citie. Wherefore, I lament mee of nature, the which either ought not to haue made mee a knowler of this, or it ought to haue giuen mee power, to haue bene able to haue executed it: For now being olde, I cannot hope to haue any occasion, to be able so to doe. In consideration whereof, I haue bene liberall with you who being graue young men, may (when the thinges said of me shall please you) at due times in fauoure of your Princes, helpe them and counsaile them, wherein I would haue you not to be afraied, or mistrustfull, because this Prouince seemes to bee altogether giuen to raise vp againe the things deade, as is sene by the perfection that Poetrie, painting, and writing, is now brought vnto: Albeit, as much as is looked for of mee, being stricken in yerres, I do mistrust. Where surely, if Fortune had heretofore graunted mee so much
state

state, as sufficeth for a like enterprise, I would not haue
doubted, but in most shord time, to haue shewet to the
world, how much the auncient orders auailc:
and without peraduenture, either I would
haue increased it with glozy, or
lost it without shame.

¶ The ende of the seuenth and last booke of the arte of
warre, of Nicholas Machiauel, Citezen and
Secretarie of Florence, translated out
of Italian into English: By
Peter Whitehorne,
scelow of Graile
Iane.

Ce.

Nicholas



Nicholas Machiavel, Citezein

And Secretarie of Florence, to
the Readers.



¶ The intent that such as read this booke
may without difficultie vnderstand the
order of the battailes, or bandes of men,
and of the armies, and lodgings in the
Campe, according as they in the descrip-
tion of them are appointed, I thincke it
necessarie to shew you the figure of euerie one of them :
wherefore it is requiset first, to declare vnto you, by
what points and letters, the footemen, the horsemen, and
euerie other perticuler member are set forth.

Know therefore that

•
•
•
v
r
C

Target men.

Pike men.

1 Capitaine of ten men.

Veliti a ordinarie.

Veliti extraordinari

a Centurion or cap-

which are those
men that shot
with harkabu-
les or bowes.

aine of a hundred men.

k

H

G

Signifieth

a Constable or a captainne of a band
of foure hundred and fiftie men.

The head capitaine of a maine battaile.

The general Capitaine of the whole
armie.

t

d

b

f

m

l

A

The Trompet.

The Drum.

The Ansigne.

The Standerde.

Men of Armes.

Light horsemen.

Artillerie or ordinance.

In the first figure next following, is described the forme of an ordinarie battail or band of foure hundred and fiftie men, and in what maner it is redoubled by flankes. And also how with the very same order of 80. rankes of pikes which were the foremost of euery Centurie, they may likewise in bringing them in battaille rate, come to be placed behinde, which may be done, when in marching, the enemies should come to assault them at their backes: according as the ordering thereof is before declared. fol. 32. fol. 35.

In the second figure is shewed how a battaille or band of men is ordered, which in marching should be driuen to fight on the flankes: according as in the booke is declared. fol. 35.

In the third figure, is shewed how a battaille or band of men, is ordered with two hornes, fol. 35. and after is shewed how the same may be made with a voide place in the midst: according as the ordering thereof, in the booke most plainly is declared. fol. 36.

In the fourth figure, is shewed the forme or fashion of an armie appointed to fight the battaille with the enemies: and for the better understanding thereof, the verie same is plainlier set forth in the figure next vnto it, whereby the other two figures next following may the easier be vnderstood: according as in the booke is expressed. fol. 44.

In the fift figure, is shewed the forme of a foure square armie: as in the booke is described. fol. 67.

In the sixt figure, is shewed how an armie is brought from a foure square fashion, to the ordinarie forme, to fight a field, according as afoze is declared. fol. 69.

In the seuenth figure, is described the manner of incamping, according as the same in the booke is declared. fol. 78.

This is the
 maner of or-
 dering of 400.
 men into lxxx.
 ranckes, tise
 to a ranck, to
 bring them in-
 to a iiii. square
 battaile with
 the pikes on
 the front, as
 after foloweth

Figure.

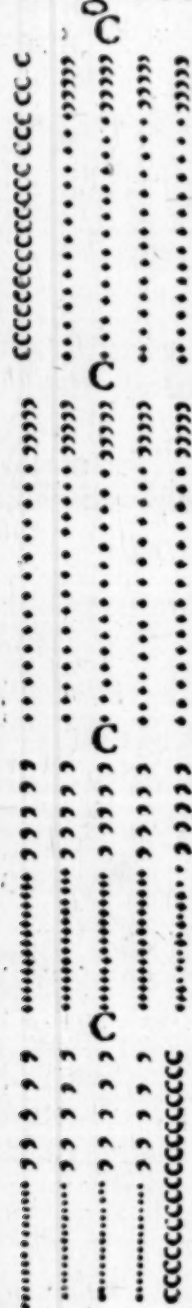
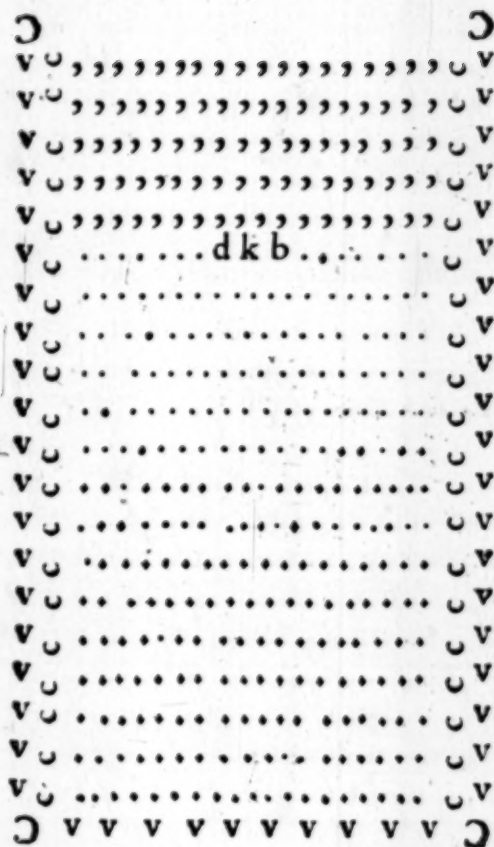


Figure.



This is y fore-
said lxxx. rāks
of iiii. C. men
brought into
a foure square
battaile, with
the pikes on y
front.
And the l. Ve-
lieue on y sides
and on y back.

The second

This is y^e ma-
ner of orde-
ring of CCCC
men into lxxx.
ranks, thus to
a rancke, to
bring them in-
to a square
battail with
the pikes on
the side, as af-
ter foloweth.

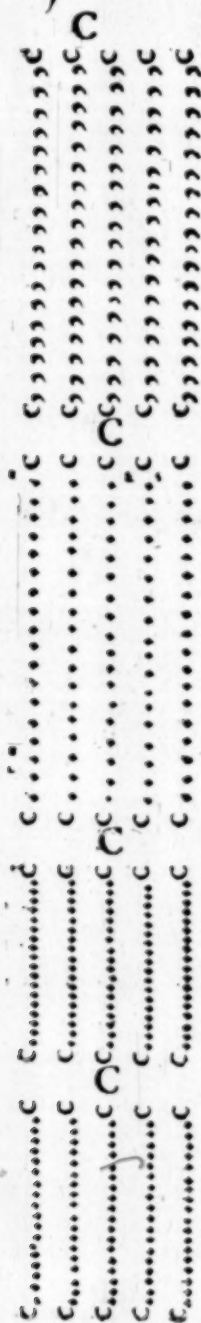
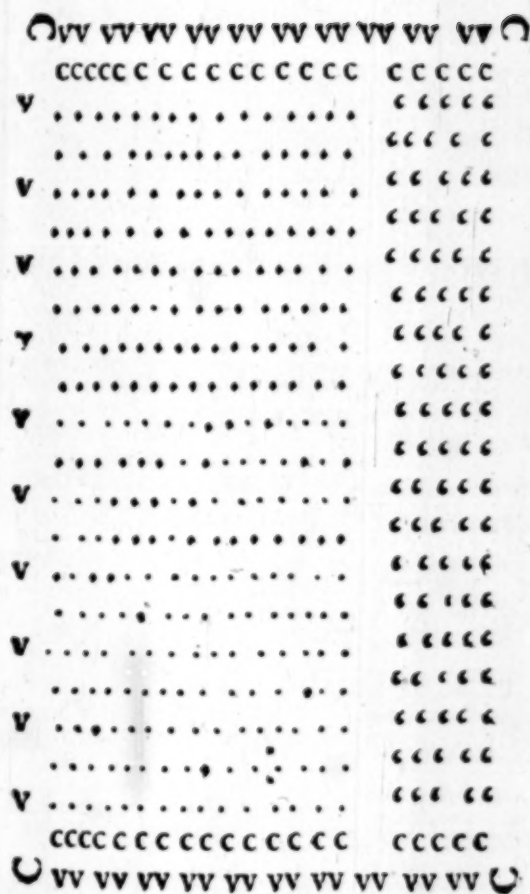


Figure.



This is y fore-
said lxxx ranks
of iiii C. men
brought into
a foure square
battaile with
the pi es on
the side.

The third

These are the numbers or ranks appointed to make y^e horned battail of, & y^e square battaile with the void space in the middest as after followeth.

.....

.....

CCCCCCCCC C C C CC C CCC

.....

.....

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200
 201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212
 213
 214
 215
 216
 217
 218
 219
 220
 221
 222
 223
 224
 225
 226
 227
 228
 229
 230
 231
 232
 233
 234
 235
 236
 237
 238
 239
 240
 241
 242
 243
 244
 245
 246
 247
 248
 249
 250
 251
 252
 253
 254
 255
 256
 257
 258
 259
 260
 261
 262
 263
 264
 265
 266
 267
 268
 269
 270
 271
 272
 273
 274
 275
 276
 277
 278
 279
 280
 281
 282
 283
 284
 285
 286
 287
 288
 289
 290
 291
 292
 293
 294
 295
 296
 297
 298
 299
 300
 301
 302
 303
 304
 305
 306
 307
 308
 309
 310
 311
 312
 313
 314
 315
 316
 317
 318
 319
 320
 321
 322
 323
 324
 325
 326
 327
 328
 329
 330
 331
 332
 333
 334
 335
 336
 337
 338
 339
 340
 341
 342
 343
 344
 345
 346
 347
 348
 349
 350
 351
 352
 353
 354
 355
 356
 357
 358
 359
 360
 361
 362
 363
 364
 365
 366
 367
 368
 369
 370
 371
 372
 373
 374
 375
 376
 377
 378
 379
 380
 381
 382
 383
 384
 385
 386
 387
 388
 389
 390
 391
 392
 393
 394
 395
 396
 397
 398
 399
 400
 401
 402
 403
 404
 405
 406
 407
 408
 409
 410
 411
 412
 413
 414
 415
 416
 417
 418
 419
 420
 421
 422
 423
 424
 425
 426
 427
 428
 429
 430
 431
 432
 433
 434
 435
 436
 437
 438
 439
 440
 441
 442
 443
 444
 445
 446
 447
 448
 449
 450
 451
 452
 453
 454
 455
 456
 457
 458
 459
 460
 461
 462
 463
 464
 465
 466
 467
 468
 469
 470
 471
 472
 473
 474
 475
 476
 477
 478
 479
 480
 481
 482
 483
 484
 485
 486
 487
 488
 489
 490
 491
 492
 493
 494
 495
 496
 497
 498
 499
 500
 501
 502
 503
 504
 505
 506
 507
 508
 509
 510
 511
 512
 513
 514
 515
 516
 517
 518
 519
 520
 521
 522
 523
 524
 525

Figure: 11 21 7

... נכח נכח נכח נכח נכח נכח

" " " " " " " " " " " "

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

~~~~~

CCCCCCCCCCCCCCCC C C C...C

.....

• • • • •

.....

.....

.....

..... K .....

.....b.....

.....

.....

.....

.....

.....

.....

CCCCCCCCCCCCCCCC C C . . . C

~~~~~

[illegible]

1945

THE POWER

| | | | | | | | | |
|---|----|----|---|---|---|---|---|---|
| l | un | un | o | r | C | C | | |
| l | un | un | r | r | r | , | , | , |
| l | un | un | r | r | r | d | k | b |
| l | ek | f | d | k | b | , | , | , |
| l | un | un | r | r | r | , | , | , |
| e | un | un | r | r | r | , | , | , |
| f | un | un | o | r | C | , | , | , |
| l | un | un | | | | , | , | , |
| l | un | un | | | | , | , | , |
| l | un | un | | | | , | , | , |
| l | un | un | | | | , | , | , |

A **A** **A** **A** **A**
v u,, uC3 u,, uC3 u,, uC3 u,, uC3 u,, uC3
v u,, u vv u,, u vv u,, u vv u,, u vv u,, u vv
C u d k b u vv u d k b u vv d k b u vv d k b u vv d k b u vv
v u,, u vv u... u vv u,, u vv u,, u vv u,, u vv
v u,, u vv u... u vv u,, u vv u,, u vv u,, u vv
v u,, u vv u.. u vv u,, u vv u,, u vv u,, u vv
C u,, uC3 u.. uC3 u.. uC3 u.. uC3 u.. uC3

•••••
dHb

[illegible]

20,,uc
 vu,,uv
 vd k bv
 vu,,uv
 vu,,uv
 vu,,uv
 20,,uc
 20,,uc
 vu,,uv
 vd k bv
 vu,,uv
 vu,,uv
 vu,,uv
 20,,uc

20, 20
 20 k 20
 20 d 20 b
 20 20 20
 20 20 20
 20 20 20
 20 20 20

C u,
 v u,,
 v d k
 v u.,
 v u.,
 v u.,
 C u.,

u,
 u,
 p k
 u.
 u,
 u,
 u.

The carriages and

FIGVRE.

[illegible]

[illegible]

THE SIXT

A A A A A

m m m m m m m C v C u , u C u , u C u , u C u , u C u ,
m m m m m m m v v r u , u r r u , u r r u , u r r u , u r r u ,
m m m m m m m v v r d k b r r d k b r r d k b r r d k b r r d k
m m m t k f m m m v v r . . r r . . r r . . r r . . r r . .
m m m m m m m v v r . . r r . . r r . . r r . . r r . .
m m m m m m m v v r . . C u . . C u . . C u . . C u . .
m m m m m m m v v r , , , e

dkbr , , , . . . r

vvvr , , , . . r

vvwv . . . i

vvvr, . . . r

vvvD, . . . C

vvv, , , . . . 6

vvvr , , , . . . r

5vCr,dkb.r

1894

RECEIVED

Price 6

Printed

27770
Eastwood

radk b. r

1992

100-443887-1

... ..

... ..

... ..

... ..

Ed K B...

1939

$$\dot{d}\dot{H}\dot{b}$$

• • • •

200, 00

२०, २१, २२, २३

r dkb r

२०००२

۲۰۰۰

2000

2000

Г у , , у Г

r dkb r

FIGVRE.

| | | | | |
|---------------|-------------|-------------|-------------|-------------------|
| A | A | A | A | A |
| u C u u u u | u C u u u u | u C u u u u | u C u u u u | u C v m m m m m |
| rr u u u u | rr u u u u | rr u u u u | rr u u u u | r v v v m m m m m |
| b, rr, d k b, | rr, d k b, | rr, d k b, | rr, d k b, | r v v v m m m m m |
| rr u u u u | rr u u u u | rr u u u u | rr u u u u | r v v v m m m m m |
| rr u u u u | rr u u u u | rr u u u u | rr u u u u | r v v v m m m m m |
| u C u u u u | u C u u u u | u C u u u u | u C u u u u | u v v v m m m m m |

| | | |
|--------|-------------|------------------|
| .II.. | | u ... r d k b |
| .m. | d h b | r. d k b r v v v |
| Gf.. | | r. ... r v v v |
| | | r. ... r v v v |
| u C | u u u u C | u ... C v v v |
| u r | r u u u r | u ... C v v v |
| k b, r | r, d k b, r | r ... r v v v |
| u r | r u u u r | r, d k b, r C |
| u r | r u u u r | r. ... r |
| u C | u u u u C | r. ... r |

| | |
|-------------|-------------|
| u u u u C | r ... r |
| r u u u r | r, d k b, r |
| r, d k b, r | r ... r |
| r u u u r | r ... r |
| r u u u r | u ... C |
| u u u u C | u ... C |
| | r ... r |
| | r, d k b, r |
| | r ... r |



THE SIXT

A A A A A

m m m m m m m m C v C u , , u C u , , u C u , , u C u , , u C u , ,

m m m m m m m m v e r u , , u r r u , , u r r u , , u r r u , , u r r u , ,

m m m m m m m m v v r d k b u r r d k b u r r d k b u r r d k b r r d k

m m m t k f m m m v v r . , . r r . , . r r . , . r r . , . r r . , .

m m m m m m m m v v r . , . r r . , . r r . , . r r . , . r r . , .

m m m m m m m m v v v . , . C u . , . C u . , . C u . , . C u . , .

m m m m m m m m v v v , , , e

d k b r , , , . . . r

v v v r , , , . . . r

v v v r , , , . . . r

v v r , , , . . . r

v v v , , , . . . C

v v v , , , . . . e

v v v r , , , . . . r

v v C r , d k b . r

r , , , . . . r

r , , , . . . r

D , , , . . . C

D , , , . . . C

r , , , . . . r

r , d k b , r

r , , , . . . r

r , , , . . . r

D , , , . . . C

D , , , . . . C

r , , , . . . r

B d k b . r

r , , , . . . r

r , , , . . . r

C , , , . . . C

C , , , . . . C

r , , , . . . r

r , d k b . r

r , , , . . . r

r , , , . . . r

C , , , . . . C

C , , , . . . C

r , , , . . . r

r , d k b , r

r , , , . . . r

r , , , . . . r

C , , , . . . C

C , , , . . . C

r , , , . . . r

r , d k b , r

FIGVRE.

C. G.

the seventh

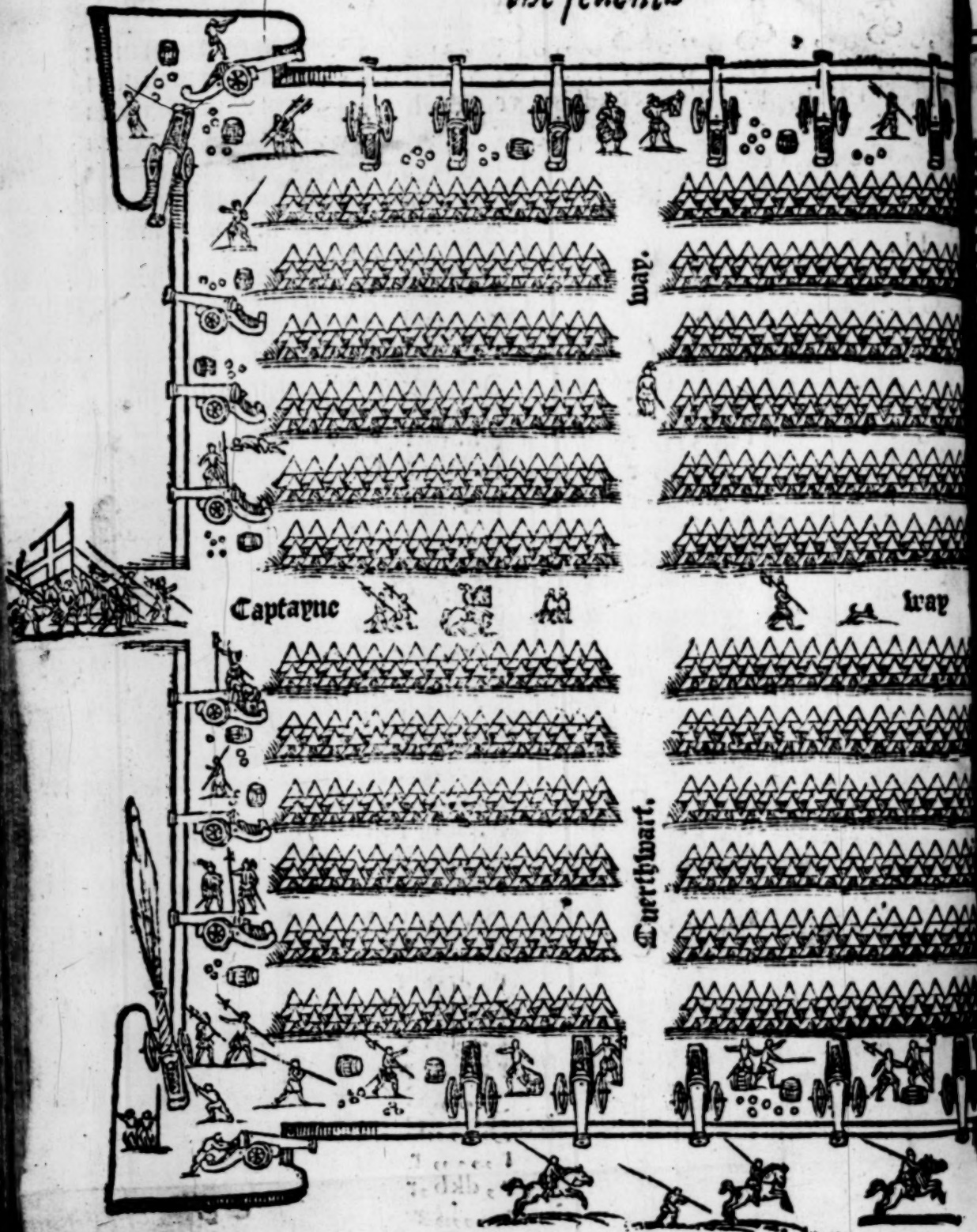
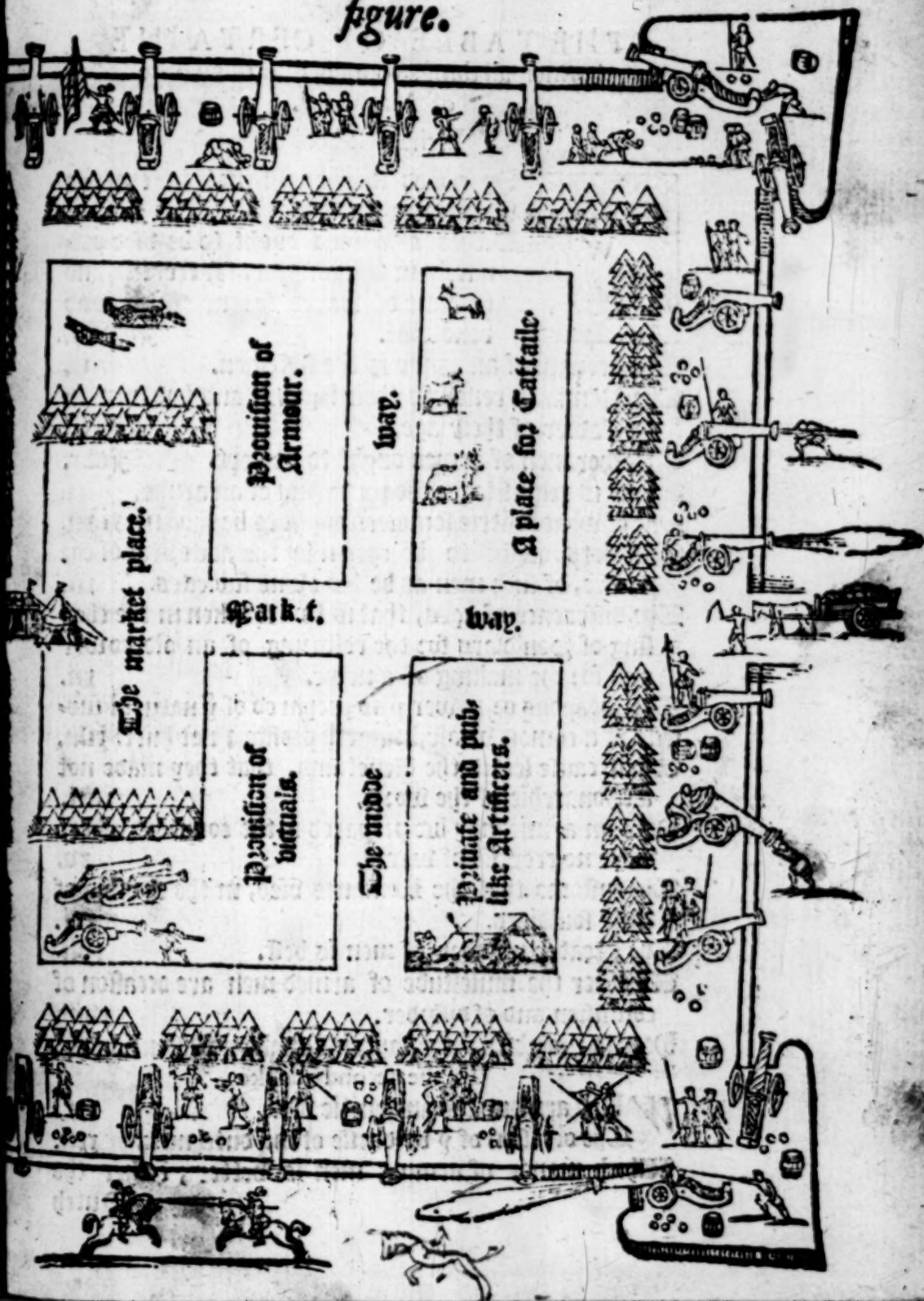


figure.



THE TABLE OF CERTAINE

principall things, contained in this worke
of Machiauel,

In the first booke.



By a good man ought not to exercise
warfare as his art. fol. vi.

Orders of armes ought to be vsed pri-
uately in time of peace for exercise, and
in time of warre for necessitie and
renowme. fol. viii.

The strength of an armie is the footemen. ix.

The Romanes renewed their legions and had men in
the flower of their age. fol. ix.

Whether men of armes ought to be kept. fol. x.

What is requisite for the preparing of an armie. xi.

Out of what countrie souldiers ought to be chosen. xi. xii.

Souldiers ought to be chosen by the auctoritie of the
Prince, of such men as be his owne subiectes. xii.

The difference of ages, that is to be taken in the choo-
sing of Souldiers for the restoring of an old power
and for the making of a newe. xii.

The weapons or power y^e is prepared of y^e natural sub-
iects of a comon weale, bringeth profite & not hurt. xiii.

What cause letteth the Venetians, that they made not
a Monarchie of the world. xiiii.

How an armie may be prepared in the countrie, where
were no exercise of warre. xv.

The custome that the Romanes vsed, in the choosing of
their souldiers. xvi.

The greater number of men is best. xvii.

Whether the multitude of armed men are occasion of
confusion and of disorder. xviii.

How to prohibite, y^e the captains make no dissention. xix.

In the second booke

What armour the antiquitie vsed. xx.

The occasion of y^e boldnesse of the dutchmen. xxii.

Which maner of arming men is better, either the
Dutch

The Table.

| | |
|---|----------|
| Dutch or Romane fashion. | rrii. |
| Diuers examples of late daies. | rriii. |
| An example of Tigran. | rrb. |
| Whether the footmen or the horsemen ought to be esteemed moste. | rrb. |
| The cause why the Romanes were overcome of the Partians. | rrbi. |
| What order, or what vertue maketh, that footmen overcome horsemen. | rrvi. |
| How the antiquitie exercised their men to learne them to handle their weapons. | rrvii. |
| What the antiquitie esteemed most happie in a common weale. | rrviii. |
| The maner of maintaining the order. | rrix. |
| What a legion is, of Grekes called a Falange, and of Frenchmen Catterua. | rrix. |
| The deuision of a legio, & the diuers names of orders. | rrr. |
| The order of battel rate, and the maner of appointing the battailles. | rrru. |
| How to order C C C C. L. men to do some seuerall feate. | rrrb. |
| The fashion of a battail: That the Swisars make like a crosse. | rrrvi. |
| What cariages & Captaines ought to haue, & the number of cariages requisite to euery band of men. | rrrvii. |
| Diuers effectes caused of diuers soundes. | rrrviii. |
| Whereof cometh the vtilitie, and the disorder of the armies that are now a daies. | rrrbii. |
| The maner of arming men. | rl. |
| The number of cariages that men of armes and light horsemen ought to haue. | rl. |
| In the third booke. | |
| The greatest disorder that is vsed now a daies in the ordering of an armie. | rlu. |
| How the Romanes deuided their armie in Hastati, Principi, and Triarii. | rlu. |
| Cg.iii. | The |

The Table.

| | |
|---|---------|
| The maner that the Romanes vsed to order them selues againe in the ouerthrow. | rlui. |
| The custome of the Grækes . | rluii. |
| A maine battaile of Swissars. | rluii. |
| How many Legions of Romane Citezens was in an ordinarie armie. | rluiii. |
| The maner how to pitch a field to fight a battaile. | rluiii. |
| Of what number of fighting men an armie ought to be. | rlvi. |
| The discription of a battaile that is a fighting. | rlvii. |
| An example of Ventidio fighting against the Parthi- ans. | rlviii. |
| An example of Epaminondas. | rlx. |
| How the artillerie is vnprofitable. | rlx. |
| How that a maine battaile of Swissars cannot occupie more then foure pikes. | lii. |
| How the battailes when they come to bee right or ten, may bee receiued in the verie same space, that recei- ued the flue. | liiii. |
| The armes that the stondard of all the armie ought to haue. | lv. |
| Diuers examples of the antiquitie. | lv. |

In the fourth booke.

| | |
|---|--------|
| Whether the Front of the armie ought to be made large. | lvii. |
| To how many things respect ought to be had, in the or- dering of an armie. | lviii. |
| An example of Scipio. | lviii. |
| In what place a Captaine may order his armie with sauegard not to be cleane ouerthrowen. | lviii. |
| Hanibal and Scipio praised for the ordering of their ar- mie. | lix. |
| Cartes vsed of the Asiaticans. | lix. |
| Diuers examples of the antiquitie. | lx. |
| The prudence which the Captaine ought to vse, in the | the |

The Table.

| | |
|---|---------|
| the accident that chaunce in fighting. | lx. |
| What a Captaine ought to doe, that is the conquerour, or that is conquered. | lxi. |
| A Captaine ought not to fight the battaile, but with aduantage, except he be constrained. | lxii. |
| How to auoid the fighting of the field. | lxiii. |
| Aduertisements y ^e the Captaine ough to haue. | lxiiii. |
| Speaking to Souldiours helpeth much to make them to be couragious and bolde. | lxv. |
| Whether all the armie ought to be spoken vnto, or onely to the headdes there of. | lxvi. |

¶ In the fifth booke.

| | |
|---|---------|
| T he maner how to lead an armie going thorough suspected places, or to incounter the enemy. | lxvii. |
| An example of Aniball. | lxviii. |
| Whether any thing ought to be commaunded with the voice or with the Trumpette. | lxix. |
| The occasions why y ^e warres made now a dayes, do impouerish y ^e conquerours as wel as the conquered. | lxx. |
| Credite ought not to be giuen to thinges which stand nothing with reason. | lxxi. |
| The armie ought not to know what the Captaine purposeth to do. | lxxii. |
| Diuers examples. | lxxiii. |

¶ In the sixt booke.

| | |
|--|----------|
| T he maner how to incampe an armie. | lxxiiii. |
| How broad the spaces and the waies ought to be within the campe. | lxxv. |
| What way ought to be vsed when it is requisite to incampe nere the enemy. | lxxvi. |
| How the watch and warde ought to be appointed in the campe, and what punishment they ought to haue that doe not their dutie. | lxxvii. |
| How the Romane prohibited women to be in their armies and idell games to be vsed. | lxxviii. |
| How | lxxix. |

The Table.

| | |
|--|----------|
| How to incampe according to the number of menne, and what number of menne may suffice against, what so euer enemy that were. | lxxviii. |
| How to doe to be assured, of the fidelitie of those that are had in suspicion. | lxxviii. |
| What a Captaine ought to doe being besieged of his enemies. | lxxxix. |
| Example of Coziliano and others. | lxxxix. |
| It is requisite chiefly for a captaine to keepe his soul- diours punished and paid. | xc. |
| Of aguries. | xc. |
| Most excellent aduertisements and pollicies. | xc. |
| The occasion of the overthrowing of the Frenchmenne at Carigliano. | xciii. |

In the seuenth booke.

| | |
|---|---------|
| C ities are strong, either by nature or by indu- stry. | xciii. |
| The manner of fortification. | xciii. |
| Bulwarkes ought not to be made out of a Towne distant from the same. | xcv. |
| Example of Genoa. | xcv. |
| Of the Countes Catharin. | xcv. |
| The fashion of percullesse used in Almaine. | xcvi. |
| How the Battelmentes of walles were made at the first, and how they are made now adates. | xcvii. |
| The provisions that is made to be made, for the defence of a Towne. | xcviii. |
| Diuers Pollices, for the besieging and defending a Towne or Fortresse. | xcix. |
| Secret conuying of Letters. | ci. |
| The defence against a breach. | cii. |
| Generall rules of Warre | ciii. |

¶ The end.



CERTAINE VVAIES

for the ordering of Souldi-
ours in battelray, and setting of bat-
tailes, after diuers fashions with their man-
ner of marching : And also Fugures of cer-
taine new plattes for fortification of townes:

And moreouer, how to make

Saltpeter, Gounpou-
der and diuers

sortes

of Fireworkes or wilde Fire,

with other thinges ap-

pertayning to the

warres. Ga-

thered &

set

foorth by *Peter Whiteborne.*

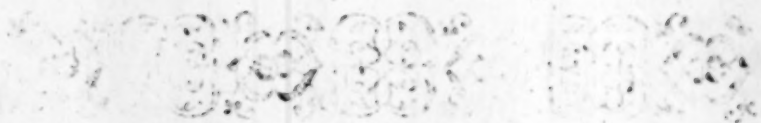
Imprinted at London by

Thomas East : for

Ihon Wight.

1588.





CHRYSTIAN WARR

for the Kings of Scotland

and the Kings of France

and the Kings of England

and the Kings of Spain

and the Kings of Portugal

and the Kings of Castile

and the Kings of Aragon

and the Kings of Sicily

and the Kings of Naples

and the Kings of Hungary

and the Kings of Bohemia

and the Kings of Poland

and the Kings of Prussia

and the Kings of Saxony

and the Kings of Brandenburg

and the Kings of Denmark

and the Kings of Sweden

and the Kings of Norway

and the Kings of Iceland

and the Kings of the Faroe Islands

and the Kings of the Azores

and the Kings of the Madeira Islands

and the Kings of the Cape Verde Islands

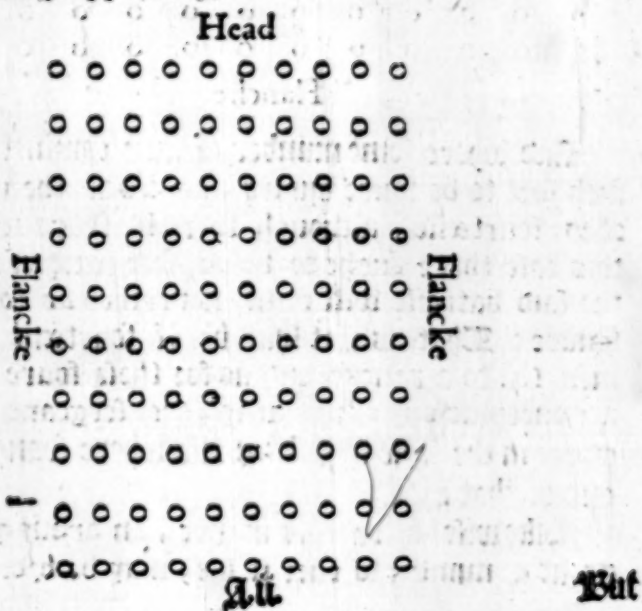
¶ A perfect rule to bring men into ²

a square battell, of what number soeuer
they be. Cap. i.



¶ To make a square battaile
of a number of men, or of an ar-
mie, the foure square roote or
quadrant number of them, must
be taken and so many as y^e same
roote containes, so many ought
to be set in aray. As for exam-
ple in a little number, for the
better vnderstanding thereof:

Admit there be 100. men, the foure square roote of 100.
ought to be taken out, which is ten. Then putting ten
of these men in a rancke, there will be ten rankes, ten
to a rancke. Which ten rankes placing them ordina-
rily, the one behinde the other, so that all the distan-
ces that shall be betwene man and man, as well on
the sides, as before and behinde be equall, such 100.
men wil make a foure square battaile, as by the figure
here folowing appeareth.



The ordering of Souldiours.

But for that men ordered in battaill ray, stand not, nor march not, as aboue is supposed, I meane in equall distaunce, for that euerie man (as Vegetius affirmeth) would haue for largenes thre fote, that is from shoulder to shoulder, and for length seuen fote, that is thre fote before him, and thre fote behinde him, and one fote that his owne person will occupie, for which cause the aboue written order, men standing according to the said ordinarie distaunce, shall not be a iust foure square, but the length thereof shal be 70. fote, and the breadth 30 fote, as appeareth by the figure following.

Flanckç

Head

Flancke

And where some number of men commeth not after such sort to be foure square, as 200. the roote whereof is fourtene, although there be foure ouerplus: in this case there ought to be put fourtene in a rancke, & the said battaile will come neuerthelesse to be foure square: That is, it shall be of fourtene rankes of men 14. to a rancke, and as for those foure men that are ouerplus out of the aray, the sergeant may place either in the taile thereof, or else where seemes him best out of that order.

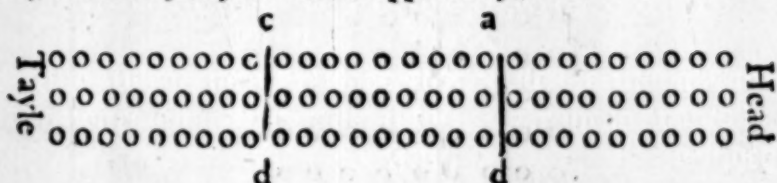
Likewise after this maner, an armie of men how
great a number so euer it bee, may be brought into a
fourc,

four square, as for example, admitte there were an armie of 35000. of these 35000. men, the four square roote is to be taken out, according to the order that I haue declared before, and the same shall be found to bee 187. and 31. men remaining ouerplus, so that placing 187. men in a rancke, such an armie will be in fashion four square, that is, it will amount vnto 187. rancks, 187. men for a rancke. And as for the 31. odde men y^e Captaine may appoint where he shal think good.

To know how many men may march in a rancke, & at a sudden to bring them into a four square battaill, so that their Ansigne, may come to be in the midst. Cap. 2.



For to do this thing with speede, the four square roote of what number of men so euer it be, is straight way to be taken: and if the same roote be so that it may be equally deuided into thre, so many as shall be the third part of that roote, so many of the said men for a rancke ought to march by the way. As for example. If the men that are to be conducted, be 81. the roote of those 81. must be taken, the which is 9. And for as much as the roote of this may equally be deuided into 3. and the third part thereof being 3. the said 81. men must therefore be made to march in iourneing 3. in a rancke, and they shall make in all 27. ranckes, as here vnder appeareth.



And when neede is that they must bee brought into a four square battaill, al these 27. rancks would be
A.iii. deuided

The ordering of Souldiours.

decided into three equall partes, as is declared by a.b. and c.d. So that to euery part there come to remaine 9. ranckes, three men in a rancke, and afterward the first part that is in the front must be caused to stay, and the other twaine to proceede forwarde, the one on the right hand, and the other on the left hand of the first (now standing still) untill the head or front of either of the said two parts do unite or come to be cun with the head of the first, and there to stay. As by the figure folowing may be vnderstande.

Fonte

A

The which three partes thus brought and ordered, shall make a foure square battaile, as appeareth by this figure folowing: and to cause that the Ansigne doe fall in the middest of such a battaile, allwaies it ought to be placed in the middest of the first part, as before appeareth in the point. A.

Head

A 10x10 grid of small circles. The letter 'A' is formed by a cluster of circles in the center of the grid, specifically in the 5th and 6th rows and 4th through 7th columns.

But

H 000000000 H H 000000000 H H 000000000 H
 H 000000000 H H 000000000 H H 0000 0000 H
 H 000000000 H 000000000 H H 000000000 H

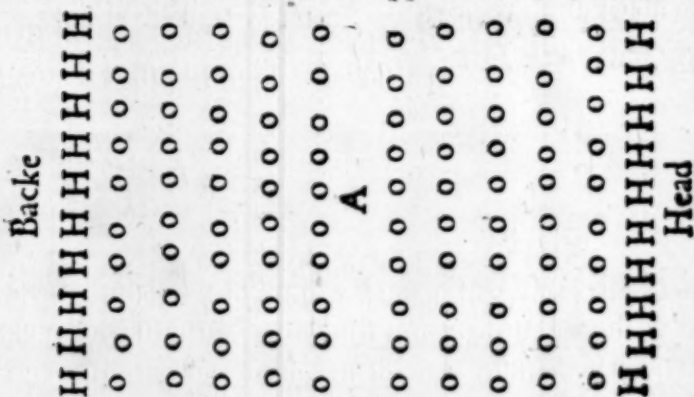
And when such a roote cannot bee deuided into thre equall partes, of necessitie there must remaine ouer one or two . Now let vs first take example this , where remaineth ouer one , as it should bee if it were a hundred men, the root whereof is tenne : which tenne deuided into thre, commeth to thre times thre, and one remaining ouerplus . Wherefore there must bee made tenne ranckes to march thre and thre (that is so many ranckes as the number of the roote is of) and other ten ranckes foure and foure together, & the last 10. ranckes also thre and thre together : as here folowing appeareth with their 20. Markabutters or Bowmen , besides the laide hundred men.

Front
HHH
HHH
HHH
HHH
HHH

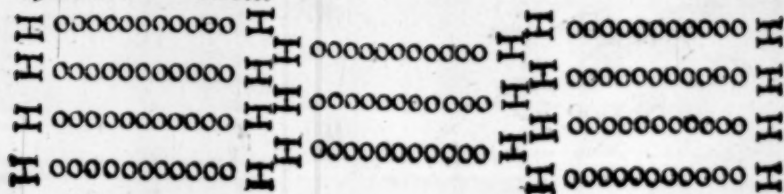
And

The ordering of Souldiers

And these three partes when it is needefull to bring them into a fouresquare battaile, must be ordered as aboue is rehearsed, or else causing the first part in the foreward to stay, and to make the second part to proceede onward until the headde or front of the second part come to be euen with the head of the first, and so the said second part standing still, to cause also the third part to proceede foreward after the same manner, the which thing being done, such a battaile shalbe brought into fashion fouresquare, with their Markabutters or Bowmen before & behind: as appeareth by this figure.



But when in deviding the saide rote there shall happen to remaine .2. ouerplus, as should be when there were .121. the rote whereof is .11. which .11. parting into .3. comes to .3. times .3. and two remayning ouerplus (as I haue saide) in this case and in other like, I would make a .11. rankes to march (that is, as many as the rote containes) 4. menne in a ranke, and an other .11. rankes .3. menne together in a ranke, and the other .11. rankes also .4. men to a ranke: As hereafter appeareth in figure, with their .22. Markabutters, beside the said .121. men.



The which menne alwaies, when they would be brought into a foure square battell, must be ordered as before is declared.

And this rule may serue likewise in what littell or greate number so euer it bee, as well quadzant as not quadzant. As for example onely in wordes: put the case that there bee. 3969. whereof being minded to know how may men in a rancke should be caused to march together by the way, so that commodiously they may at a soden, be brought into a foure square battel, the must be taken the quadzant roote of this number of menne (by the same way that I haue taught) which shall bee found to be 63. so that on euerie side of the square battell shall be 63. ranckes of menne, and for as much as this roote (which is 63.) may be deuided into 3. equall partes, the third part thereof is to be taken (for a generall rule) that is 21. and therefore 21. menne in a rancke would be made to march together by the way. And alwaies there shall be as many ranckes in all after 21. to a rancke, as are three times so many as the roote is of, which is, three times 63. which comes to 189. so that 189. ranckes of men shall be the number thereof after 21. to a rancke. And by the roote that is 63. you may vnderstand that such deuision is to be made betwene 63. and 63. so that the first shall be as well 63. part as also the second and the third. In which deuisions the two double ranckes of Darkabutters are to be placed for the redier knowledge to bring them into a square battell. But if in deuiding the roote into three, there should remaine 1. ouerplus, as should happen if the presupposed men were. 5776. the roote whereof being 76. which roote deuided into 3. shall come vnto 25. and one to remaine ouerplus. Now I say, that all the ranckes that riseth of these men, shall bee notwithstanding three times so many as the roote, that is three times. 76, which makes. 228. And for as much as all

The ordering of Souldiers

these orders of ranckes , are deuided euermore into 3. partes (as before hath bene declared) 76.ranckes to a part , that is so many as the roote is of) therefore it is to be vnderstood,that the first and the last of these thre partes must be made to march 25 . men in a rancke, which is as much as the third part of the roote , and for that there remaineth one ouerplus(as aboue appeareth) I say that the same one must be put alwaies in the second part , which is in the middelt , I meane causing those of the said second parte , to march 26. menne in a rancke,so that the first and the last part of the great rew of ranckes.be 25.men in a rancke , and the second part to be.26.men in a rancke,and the very same ought to be done of euerie other roote that may be deuided into thre,wher onely remaineth ouerplus one , but when there remaineth ouerplus 2 . it followeth, cleane contrary : For that the first and the last parte would be of one man more,then the same that the third part of the roote is of.As for example if the said men wer 2809.the roote whereof is 53.which deuided into thre, comes to 71.and 2. remaining ouerplus : therefore of so many menne,there shall be made 159.ranckes(that is thre times 53.) which 159.ranckes deuiding them also into thre partes cometh vnto 53.to a part,that is the number of the roote . And the first and third part would be of one man more then the third parte of the roote,that is,it would be of 18.menne to a ranck. and the second part , which is the part in the middelt, would be the very third part of the roote : that is, 17.menne to a rancke,so that all the 159 . ranckes,as wel the first 53.ranckes,as likewise the last 53.ranckes ought to be of 18.men to a rancke,and the 53.ranckes in the middelt would be onely of 17 . men to a rancke and , wherem parting the roote into 3 . there remaineth ouerplus onely one , it goeth cleane contrarie to this . For that the first and the third part of the
said

said great row of ranckes, will alwaies be of as many men to a rancke as shall be the whole third part of the roote, and the middle part, which is the second, will be of one man more then the third part of the roote. And for as much, as there can neuer remaine ouerplus aboue one or two in deuiding the roote into thre, therefore this foresaid rule shall serue in what number of men so euer it be, as well Quadrante as not Quadrant, for that like as befoze is said in numbers not Quadrante, alwaies there is taken the roote which goeth nearest to such a number, and therewith to do accordingly, as aboue hath bene said. And as for the residue of the men that cometh to be ouerplus of the Quadrant of such a roote, may be placed some other where as shall be thought most best. For example if there were foure thousand men, which number is not Quadrant, yet notwithstanding of the same number there ought to be taken out the nearest roote thereof, which is 63. so that there shall remaine ouerplus one and thirtie men, whom minding in a suddaine to bring into a foure square battaile, there ought to be put in a rancke 63. men, and such a battaile shall come to be foure square, as in the beginning hath bene said: and where there remaines ouerplus those 31. men, the Sergiant may place them as he shal thinke good. Likewise minding to cause those 4000. men to march, there ought also to be taken the nearest roote thereof, which as aforesaid, is 63. which deuiding into thre, comes vnto thre times 21. & nothing remaining ouerplus: & therefore the said men ought to be caused to march. 21. in a rancke, & the said rancke to be deuided into thre parts. 63. to a rancke according to the foresaid rule, in such sort that the last part shall be 64. ranckes, and also 10. men more because of those 31. men that were ouerplus in the beginning, the which as hath bene said remained out of the arate: And after the same maner,

The ordering of Spuldiours

it is to be done when the rote of such a number that is not Quadrant, doth not agree with the perfect diuision by thre, which is, if there be ouerplus one, to procede as aboue hath bene declared. I meane to put a man more in a rancke to the middell part, and to the other two partes, the first, and the third, to put onely so many men in a rancke, as the third part of the rote shall con- teine: and when there remaineth ouerplus two, to pro- ceede cleane contrarie: that is, to put a man more in a rancke to the first, and to the third part, and to the se- cond, to put onely so many men in a rancke as the third part of the rote shall be of, and those men that are re- maining ouerplus, in taking out the rote in the begin- ning to place them, as aboue I haue said.

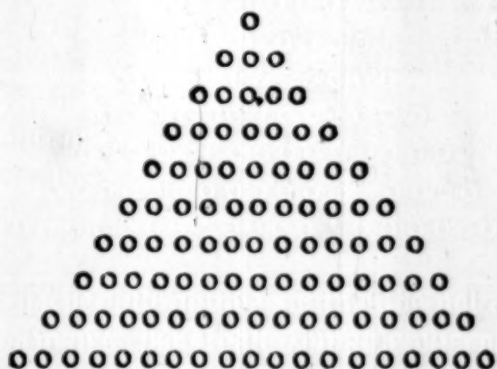
¶ How to ordaine a number of men or an armie into a battaille, like vnto a wedge, or three square, so that it may be apt to marche with with the point thereof toward the enemies. Cap. 3.



This fashion of battaille, is made after this maner, first placing one man, and after thre, & next fve, and after seuen, and then nine after a leuen, and so to increafe alwaies two men more, till such time as there be no more men to place. Al be it there may be such a number of men, that at the last they can not, or there shall not bee suf- ficient to make vp the last rancke, which happening, those men may be left out of y^e arate, to serue wher their Captaine shall thinke most meete, soz that the like hap- peneth often times, and in euerie maner of ordering men, that alwaies there resteth some man out of the aray. And soz the better vnderstanding hereof: admit soz example that the men that is to be brought into a thre square

square battaille be 100. I say that first one is to be placed, after 3. after 5. after 7. after 9. after 11. and so to procede: adding alwaies two men more in a rancke, untill they be all placed, as here following appeareth in figure. Where the last rancke in this case, shall come to be 19. men, not remaining any man ouerplus: and this is, for that the number of men, (which is 100) is a Quadrant number: and likewise in euerie other number that is Quadrant, the said Triangle battaille shall be made without any man remaining ouerplus.

Head,



But if the said number of men be not a Quadrant number alwaies there shall remaine ouerplus so many men, as the said number of men shall be more then the great quadrant number contained of the same, as for example, if the presupposed men to make the three square battail were 120. I say, that there shall remaine ouerplus 20. men out of the aray of the three square, that is, so many as the 120. exceedeth 100. (being the greater Quadrante number contained in the same) Which also shall be 20. but if the said men were 123. there should remaine ouerplus onely two men, for as much as the greatest Quadrant num-

The ordering of Souldiers

ber that can be taken of 123. shall be 121. and 123. is more then the said 121. by the said two, and the verie same is to be vnderstode in euery great number.

¶ To make the battaile called the sheeres, which in old time they vsed to set against the Triangle.

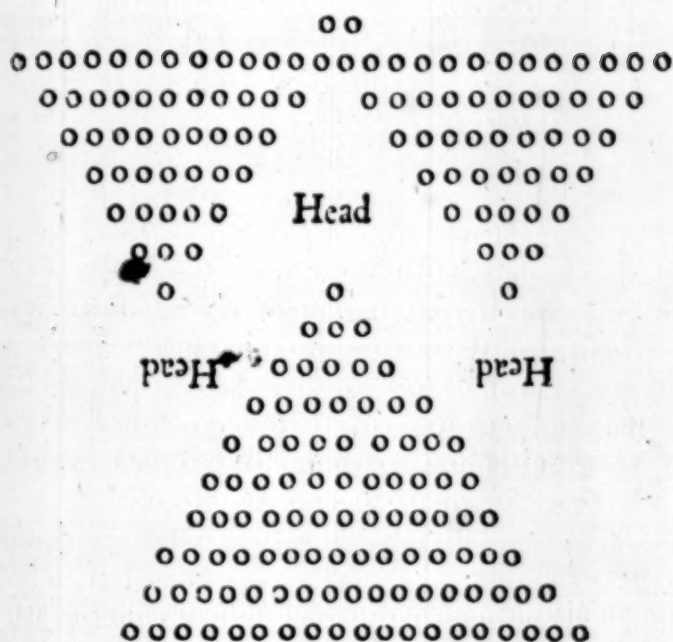
Cap.4.



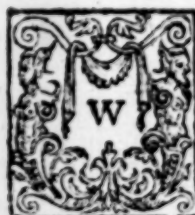
He Shæres are made with two Triangles ioynd together, for to receiue betwene them the said battaile, made like a wedge or Triangle. The example wherof I will make also with 100 men, as the Triangle or wedge was made, so that thereby may be iudged if there were two armies of equall numbers of men, and that the one of them were pitched like a Triangle, and the other like a Shæres, which of them should haue the aduantage. Wherefore minding of 100. men to make the battaile called the Shæres, they ought to be diuided into two equall partes, and of euerie one of these partes being 50. to make a Triangle according to the maner aboue declared, and so ioyne them together, as here following appeareth in figure with their points towarde the enemies: I meane towarde the wedge, to receiue it betwene them: And it is to be noted how in making of these two Triangles, there shall remaine ouerplus one man of euery one of them out of y^e arais, for that the number of fiftie is no Quadrant number, and it is more then the Quadrant number contained of the same (which is 46. by a man onely) so that betwene them both there shall remaine ouerplus two men, as here appeareth in figure.

in battail ray.

8



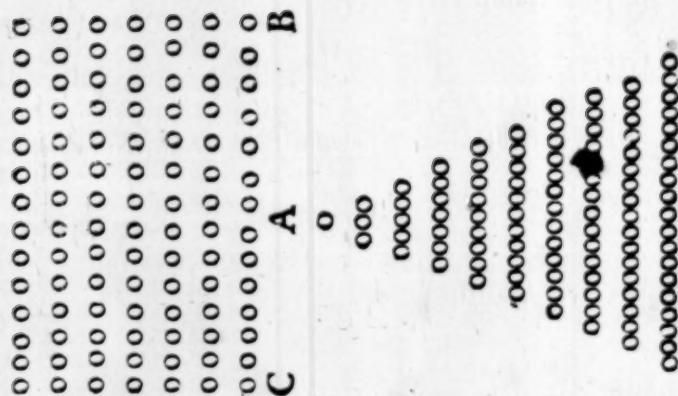
What aduantage it is to order men in a Triangle
battaile against the enemy that knoweth not
how to make the battaile called the Sheeres
to set against it, inesppecially where there is
as many men of the one part as of the other.
Cap. 5.



When the contrary part would come a-
gainst a three square battaile, with a bat-
taile that were foure square, as now a
dayes is vsed, by all reason it shalbe boz-
ken and ouerth;owne. As admit for ex-
ample that ther be 100. in a three square
battaile, & a hundred other men in a foure square bat-
taile, pitched against the iii. square, as here folowing ap-
peareth in figure.

And

The ordering of Souldiers



And for that the order of the Triangle in fighting, is after such sorte, that all those which shote with any kind of weapon, as peeces of Ordinance, Harkebuttes, Dartes, Bowes, or Crosebowes, ought all to direct their shotte, and to stricke onely in the same place, wher the point of the Triangle seekes to enter, I meane in the point A. whereby the menne that are in the same place, shall either bee slaine or else constrained to giue place to the point of the saide Triangle throughe the great multitude of shotte striking in that place. So that the point of the saide Triangle entering therein, may continually penerate all the saide aray cleane throughe. For as much as all the Harkebutters, & Archers which remaine without, must not cease to shote in the very same place, and no other where else: which thing doing it is impossible but that way shall bee giuen for the sayde Triangle to enter in, and once entered, such an armie is ouer thowen without any remedie. For all the force and strength of such a Triangle being made

made in that place onely, it is not possible that men in such a place may be able to withstand, although there were many moze in such Quadzant aray, then those that be in the said Triangle, because the place of . A cannot be succoured of any of those of the same battell, considering that if those which are placed towarde . B . or else towarde . C . would come to succour the place where the violence and force is made, it must needes be, that they must disorder themselves: and being once disordered, they runne into the very same mischiese, after such sorte, that they shall remaine altogether broken: and remaining in their places, their strength or power, resteth of none effect: for as much as none of them can be able to do any thing, how valiant so euer he be.

Whereby may be vnderstood of what importance this Triangle battell is against the enemye, that knoweth not the medecin or remedy thereof.

¶ To bring a number of men or an armie, into a battell, which in olde time was called a Sawe,

Cap. 6.



This fashion of Battell according to the qualitie of the name, ought to be made as it were with teeth, like vnto a Sawe which they vse to Sawe timber with, all. And therefore minding to bring a number of men, or an armie into such a fashion, there must be considered two thinges, the one, how many teeth, this Sawe is to be made of, and whether besides those teeth, there would be any other raies to sustaine such teeth or no. As for example, admitte that the men of whom must be made those onely teeth of this foresaid Sawe, be 100. now these 100. menne ought to be devided into the number of the teeth that this Sawe shall haue, and of euerie one of those parts,

C.

to

The ordering of Souldiers

to fashion a Triangle, by the Rule declared in the third Chapter: and those Triangles to ioyne close together, according as was done of those two that made the Sheres: As put case that of the saide hundred menne there would be made foure teeth of a Salve, then the saide. 100. men must be deuided in to foure partes, in which diuisions it will come to 25. for a parte. Now of euerie one of these partes, ther ought to be fashioned a Triangle, according to the order giuen in the foresaid third Chapter. And these foure Triangles to ioyne them straight together, as here following appeareth in figure: and this is in as much as in making the teeth only: but if peradventure there would be put an other order behind the said foure teeth, it is needefull first to, determine of how many men such as rape is to be made, and those to take out by themselves, and of the rest to

| | | | |
|----------|----------|----------|----------|
| o | o | o | o |
| ooo | ooo | ooo | ooo |
| ooooo | ooooo | ooooo | ooooo |
| oooooooo | oooooooo | oooooooo | oooooooo |

make the teeth, and behind the said teeth to place those number of men which first were taken out, and to ordaine them so many men in a ranche, as shall be found directly in length in all the hinder partes of the teeth that are made, as for example, admitte ther be two hundred & xliii. men, and that with a hundred men thereof, there must be made foure teeth of a Salve, & the other 144. to be made certaine ranches to sustaine the saide foure teeth: Therefore the hundred men being brought into foure teeth, as aboue is declared, consequently behinde those 5. there ought to be placed those C. and xliii. men xxiii. men to a ranche: for as much as in all the foure lower partes of the said foure teeth there

there bee 36. men , as in the figure next following appeareth. And after this maner and order, if there were a hundred thousand men , they might be set in a ray, placing them, as aboue is done with that litle number.

Front.

```

      o      o      o      o
    ooo    ooo    ooo    ooo
  ooooo  ooooo  ooooo  ooooo
ooooooo oooooooo oooooooo oooooooo
oooooooooooooooooooooooooooooooooooooooo
oooooooooooooooooooooooooooooooooooooooo
oooooooooooooooooooooooooooooooooooooooo
oooooooooooooooooooooooooooooooooooooooo
oooooooooooooooooooooooooooooooooooooooo

```

To fashion a battaile of a number of men, or an armie like vnto two Triangles ioyned together, so that they may be apt to march with a corner thereof toward the enemies. Cap.7.



With the rule whereby the single Triangle is made, with the verie same almost this fashion battaile is also made: for as much as druping all those men, or y armie where with this fashion battaill is made into two equall partes, and of the one halfe thereof to make a Triangle, and that done, vpon the verie last side of the same, there ought to be placed the other halfe number of men in ranches, which continually go decreasing by two men lesse, I meane of one contrarie to that was bene at the beginning with one, where beginning to make the point of the Triangle, the ranches were continuallie increased with two men more. But it is to be vnder- stood, that if in making the first Triangle, there happen

C.ii.

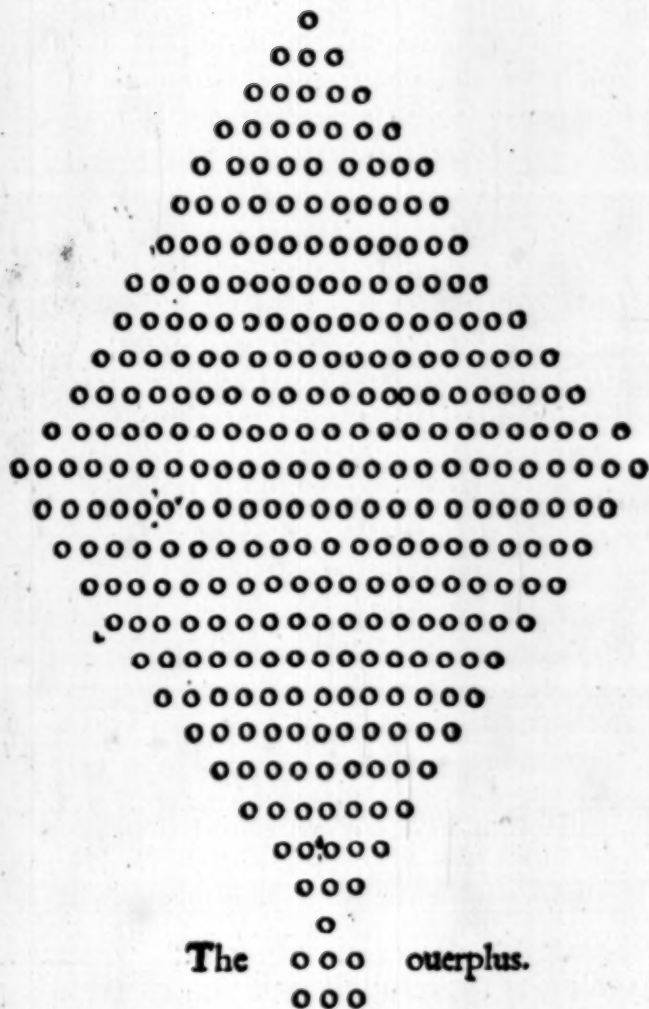
to

The ordering of Souldiers

to remaine ouerplus any men, that are not sufficient to make vp an other rancke, yet the very same rancke ought to be finished vp with some of the other halfe number of men, so; that one of these two Triangles ioyned together, cometh to be of one rancke more then the other. As so; example, admit the men where, with this fashion battaille is to be made, be 320. which must be deuided into two equall partes, so that by such deuision there will be 160. men for a part, and of the one of these partes, there would be made a Triangle, according to the order declared in the third Chapter, which done, there shall be found to remaine ouerplus. 16. (by the reason alledged in the said third Chapter) so that there shall lacke 9. men to finish the said last rancke of the first Triangle: Wherefore the said rancke must be made vp, with the men of the other halfe, as taking those 19. men which lackes, so that in the said first Triangle may bee 169. men, and in the other part onely 151. men, wherewith the other triangle ought to be made vpon the last rancke of the first, which last rancke shall be of 25. men: wherefore vpon the same, there must be placed an other rancke of two men lesse, that is 23. and vpon the same said 23. men, to place another of 21. men, and vpon the 21. men, to place another of 19. men, and vpon those 19. men to place another of 17. men, and so to procede allwaies with two men lesse, till such time as it cometh to the rancke of one man onely, as here following appeareth in figure: True it is, that there shall be found in the end, to remaine ouerplus 7. men, the which the Sargeant may place where he shall thincke good. And thus with this maner of order, there may be brought into like aray, anie armie how great so euer it bee, and they may turne them selues, and in marching, make of the Rereward, the Foreward, and likewise of what so euer side they list.

Front

Front,



C.iti.

What

The ordering of Souldiers.

¶ What is best to be done where the ordinance of the eucmies being shotte into the armie hath slaine many men.

Cap. 8.



An Armie of men that happeneth to haue certaine rancks thereof to be stricken downe & kild with the enemies ordinaunce, and marching after such sort, leauing voide the places of those men, which are slaine with the Artillerie, or else drawing them selues close altogether, to fill such emptie places, the one of these waies is verie euil, & the other much worse: for as much as leauing those places after such sort open, in especially in the foreward, there is geuen therby great facilitie vnto the enemies to enter into the said raies, and to ouerthrow them. And likewise causing after such nussortune the said raies to draw together, to fill the said places, those raies must needes altogether be disordered, and shall be brought almost into confusion: for that it is to be thought that the said Artillerie, doth not destroy any rancke of men whollie from one end to an other in length, but onely a part of some, and a part of other, and some to remaine vntouched, or unhurt. In which case being minded to cause them to draw together, to fill by the said voide places, it must needes follow that the whole rancke do disorder in lengthning those that lache, so that some of the ranckes shall remaine with a greater number of ranckes of men (in length) in the Rearward, then in the foreward, whereby if such a battail would march of necessitie it will immediatly runne into confusion, because of those ranckes that are vnperfect

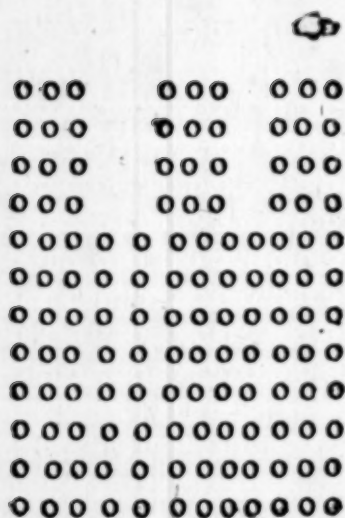
perfect in length: Therefore that Captaine is to be praised, which instructeth his menne that in like chaunces, they neuer remaine without a companion before them, except it be in the front, as to aduertise euerie one of them, that if it fortune to happen any of them to lacke the same man, which was wont to march before them, or else no, that then incontinent, and with seleritie they do march forward, untill they finde an other companion in the accustomed distaunce before them, and wher it fortuneth no man to be found, to aduertise them, how they should then procede till they come to the head or front, and in such place to stand still, or else to march according as y other rancks in the head or in the front shall doe.

And this being a generall rule that euerie man must take the measure of his marching softly or fast of his companions that goeth before him, and not of any that be of their sides. All those men therefore that shall be found in the verie same rancke behind such a man that doth lacke his companion or companions before him shall be constrained to runne, or goe a pace according as that man shall marche, which shall be next before him: which thing being obserued of euerie man in the battell, alwaies the forward or front thereof, shall come thereby to be whole and sound, and those empty places of the dead to be transformed into the Rearward, in which places there shall not almost be any perrill. As for example, admitte, that in a battell of 144 menne in fashion foure square, the enemies hath slaine 12 menne, as by the void places in the figure following appeareth, I saye that hauing aduertised euerie man to doe as much as before I haue declared, which is, that euerie time that he lacketh his fellowe (or men) that marched before him, he doe straight way make hast, and with all speede possible not to cease going forward, till he finde another companion

The ordering of Souldiers.

rich in the accustomed distaunce that goeth before him:

Front.



And if it fortune in such a rancke that in the ende hee finde no man, yet he ought to procéde so much till hee come to the last rancke in the ffront, and there to stand still, or else to march according to the order of the saide rancke. And likewise every man ought to take heede that in his marching fast or softelye, hee doe rule him selfe by his compaignion that goeth before him, and not of any of those that be on his sides: which thing

The ordering of Souldiers.

rich in the accustomed distaunce that goeth befoze him:

Front.



And if it fortune in such a rancke that in the ende hee finde no man, yet he ought to procede so much till hee come to the last rancke in the ffront, and there to stand still, or else to march according to the order of the saide rancke. And likewise every man ought to take heede that in his marching fall or softelye, hee doe rule him selfe by his compaignion that goeth befoze him, and not of any of those that be on his sides: which thing

The ordering of Souldiers.



Ike as the Captaine with sound of the Trompette, or with voice shall cause the Souldiours to bee aduertised and taught to know how to tourne that way, which is betwene the front and the right side, or the left, and likewise that way that is betwene the right, or left side, and the backe, and after that they shall be well informed therein, euen so I would also haue them to be well aduertised of the same, that was declared in the last chapter, which is to shew and teach euery man that alwaies when he shall be caused to turne towarde any of the foresaide sides, and shall not finde to haue his fellow in the accustomed distaunce before him, that then the same men with all speede do procede, or march so farre right forth, till he finde a companion before him in the accustomed distaunce: of which thing euery Souldiour being well informed and instructed, with the twinkling of an eye, an Armie that is in fashio iiii. square, may be transformed into a triangle. As for example, minding to make the right corner the point of the saide triangle, with sound of Trompet, or with voice, causing euery man in the army to turne them selues with their faces that way, which is betwene the front and the right flank, and incontinent, so soone as they are tourned, euery man obseruing the foresayd order, that is, that all those, which shall perceiue not to haue his fellow before him in the accustomed distance, do procede straight forth vntill he haue one, which done, the said foure square fashio, shalbe found to be chaunged into a triangle fashio, and the point of the same triangle figure, shall come to be the right corner of the front of the first figure. Which thing is as easie to be done as is possible: for the triall whereof, let there be for example 25. men standing in fashio foure square, as here after appeareth in figure, and to cause

cause it to be better vnderstode, I haue thought good to make this figure with the 25. letters of the a.b.c. Now minding to chaunge this foure square figure, into a triangle figure, it is needful to cause them al to tourne

Front.

| | | | | |
|---|---|---|---|---|
| A | B | C | D | E |
| F | G | H | I | K |
| L | M | N | O | P |
| Q | R | S | T | V |
| X | Y | Z | & | ' |

With their faces that way, which is betwene the head and the same side where I haue thought good to make the point of the wedge or triangle: as for example, purposing to make the corner E. the point and head of the triangle, I shall cause that euerie man do tourne with his face that way, betwene the front and the right flank, towards the corner E. which thing done, the foresaid figure shall come to stand as here appeareth: in which figure may be seene many men, that hath no felow in the accustomed distance before him although they haue a felow straight before him, much more fur-

The ordering of Souldiers.



ther of them the ordinarie, which is double so much as the ordinarie, as appeareth by F. who hath right before him B. but the distance $\frac{1}{2}$ is betwene the said F. and the said B. is double so much as the ordinarie distance, wherefore if F. shall obserue the preceptes aboue declared, immediately so soone as he shall haue turned his face that way, he should intontinent goe, to come néerer to the said B. in the accustomed distaunce, which doing, he shall bring himselfe betwene A. and G. Albeit the said G. shall not remaine in his first place, but shall goe néerer vnto C. to the accustomed distance, & in the place wher G. was first L must come. So that F. shall stand betwene A. and L. and likewise if all the other shall proceed forward, according to $\frac{1}{2}$ said order, vntil euery man find a fellow in the

the accustomed distaunce befoze him H. shall goe néerer vnto D. and M. shall folloiw the said H. and Q. shall folloiw after y^e said M. euerie one of them, vntill they come to their accustomed distaunce. And in like maner L. shall goe néere vnto E. and N. shall folloiw I. and R. shall folloiw. N. and X shall folloiw the said R. euerie one of them vntill they come to their accustomed distaunce. Likewise O. shall goe néerer to K. and S. shall folloiw. O. and Y. shall folloiw S. also to the ordinarie distaunce: and likewise &. shall also go néerer to V. to the accustomed distaunce, which thing being obserued, such a foure square battell shall be transformed into a triangle battail, as here folloiwing appeareth in figure, the point wherof shall come to be y^e corner E. and with this order a Captaine may chaunge an armie, with tourning of a hand, though it were of 100000. men from the fashion of a foure square to the fashion of thys square. So that the said men



be aduertised and taught, as afoze hath bene declared,
D.iii. both

The ordering of souldiers.

both as well to know how they ought to tourne, as to march. Which is of wonderfull importance: for as much, as at a sodaine to reduce an armie after this sort into a triangle fashion, it is almost impossible that the enemies shall be able, or shall know how to make their armie like the Shæres to set against it, whereby shall come great aduantage as by the 5. Chapter aboue is plainly proued: for that it seemes vnto me, that a triangle battaile, may be alway sufficient able to breake al maner of foure square battailes as is vled now a daies, although it had halfe so many moe men, so long as those of the triangle battaile be well instructed of the maner of their fighting declared in the v. Chapter.



of Fortification.

16

¶ Of the perfect forme or fashion of
strong places.



The forme which vnto the circular fashion doth most resemble, of expert and skilful souldiours, is about all other with most reason praised, so that the Curtine or walles thereof, bee made straight, and of such length, that of the bulwarkes they may bee flanked: which fashion being made with many corners, is very meete and necessarie if in a sufficient great place it be erected: for where in small rooms the iust length of the courtin is shortened, it is conuenient to build them with few corners, because if otherwise they should be shortened with a number of corners, the shorter of necessity the spaces betwene those must be, so that besides that the one bulwark may hurt the other, they shalbe moreour to no purpose, but rather an occasion of infinite cost, their courtins needing as is requisit to be defended of platformes, and the corners thereof shall come to be lesse blunt, and much sharper then they ought to be, by reason of the litle distaunce betwene them and the platformes.

Wherefore the more that they be made distaunt from those bulwarkes (the due length of the curtin being kept) so much the blunter the corners will come to be, which by them must be defended, and the more of those corners that there are in the same fashion, so much the blunter they shall also come to be. So that where the fashion of the places that are built bee sufficient great to containe all the foresayd particulars, which for a sure fortresse is requisite to be made, all thing commodiously will come to passe: and the greater that they

Plattes

they shalbe, the more men they may haue to defend them and more commodious space within, so to retire with great and strong fortification, and the platfoymes may be made much further in, and haue the corners of their bulwarkes blunt, and with a large backe, mixte so defence, and in assault, much surer then the sharpe, because the sharpe pointed bulwarke, being battered defendeth the enemye from the platfoymes, so that vnder the same, being couered, he may almost out of daunger, make an assault. Where against a Towne or Fortresse, that were built after the fashion of these plattes folowing, in what so euer part of such places, the enemye should approach marching towardes them to incampe, or in battell raie to assault them, or with Trenches, and artillerie to batter them, either high or lowe or by the curtin within, or otherwise, he shall alwaies, from many of those flankers of the same place, be greatly hurt and repulced, and of the platfoymes in especially, more then from any other where, because they be most nere, and stand higher then all the other, and they shall also hurt him more, when he shall be somewhat farre off, then nere hand, as may be seene by the plaine platte that hath the number 1. and in the same that is raised vp, that hath the number 2.

The which with two other are also here after pictured, to the ende that thereby may be considered of such as shall see them, the sundrye good and notable effectes that be in them, the which although it be not possible so easely with writing to be exprest, yet by their helpe they may be better vnderstood and comprehended, and moreover by them shalbe gotten this knowledge, whereby euery man commodiously may vnderstand, where the enemye going about with his power, may best deuise to assaile them, and how they within may prouide to defend and withstand the same with their men, taking them from those places where

where they may be best spared, so that building & fashion of fortresses, in the said maner, there shall in no place happen any such incoinodities, as in other that are ignorantly made, after the ordinary fashion with lesse corners, as also by these figures, here following is more plainly declared.

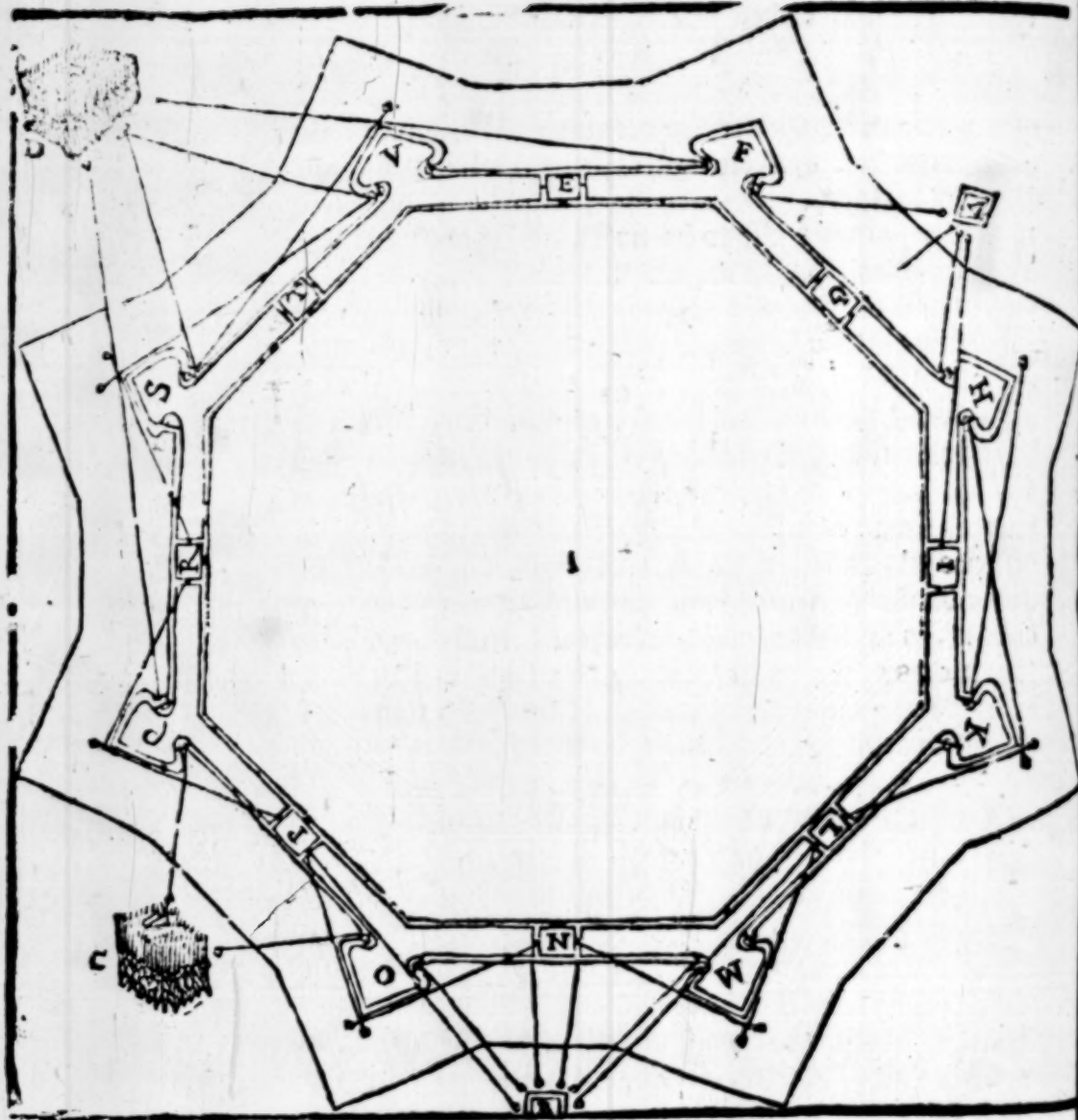
There ought also to be noted, that these and the other plattes, in this treatise set forth, being drawen in a litle space, could not be fashioned with their due proportion: albeit to the ende that same which is reasoned about them, might partly be vnderstand, they are not left out or omitted: for without their helpe it should haue beene impossible for any man, to haue comprehended that, which I seeke to declare, concerning fortification, although they were expert souldiours: as by the foresaide plattes of the numbze of 1 and 2. may manifestly be seene, how well the courtenynes of such a towne, is by the bulwarkes thereof defended, and how the ditches of the platfoymes, and of both of them are flanked and shewed besides other thinges, which by the lines that are drawen be declared, where otherwise it could not be shewed after such sorte, as it might be vnderstande, and the like happeneth in the other.

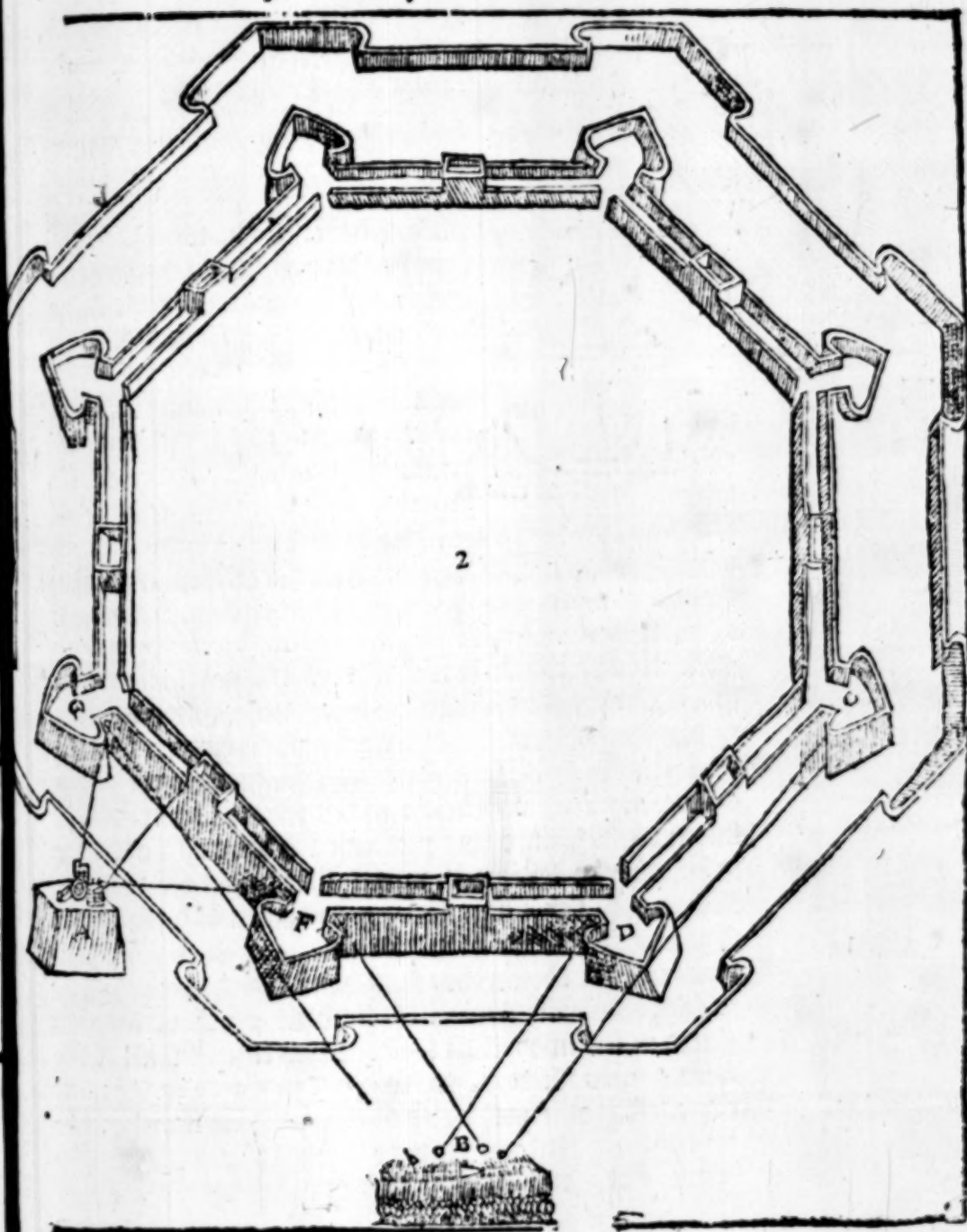
C.

The



Platte





Plattes.

¶ The strongest and perfectest fashion of all other for the building of the curtin or wall of a towne or fortresse.



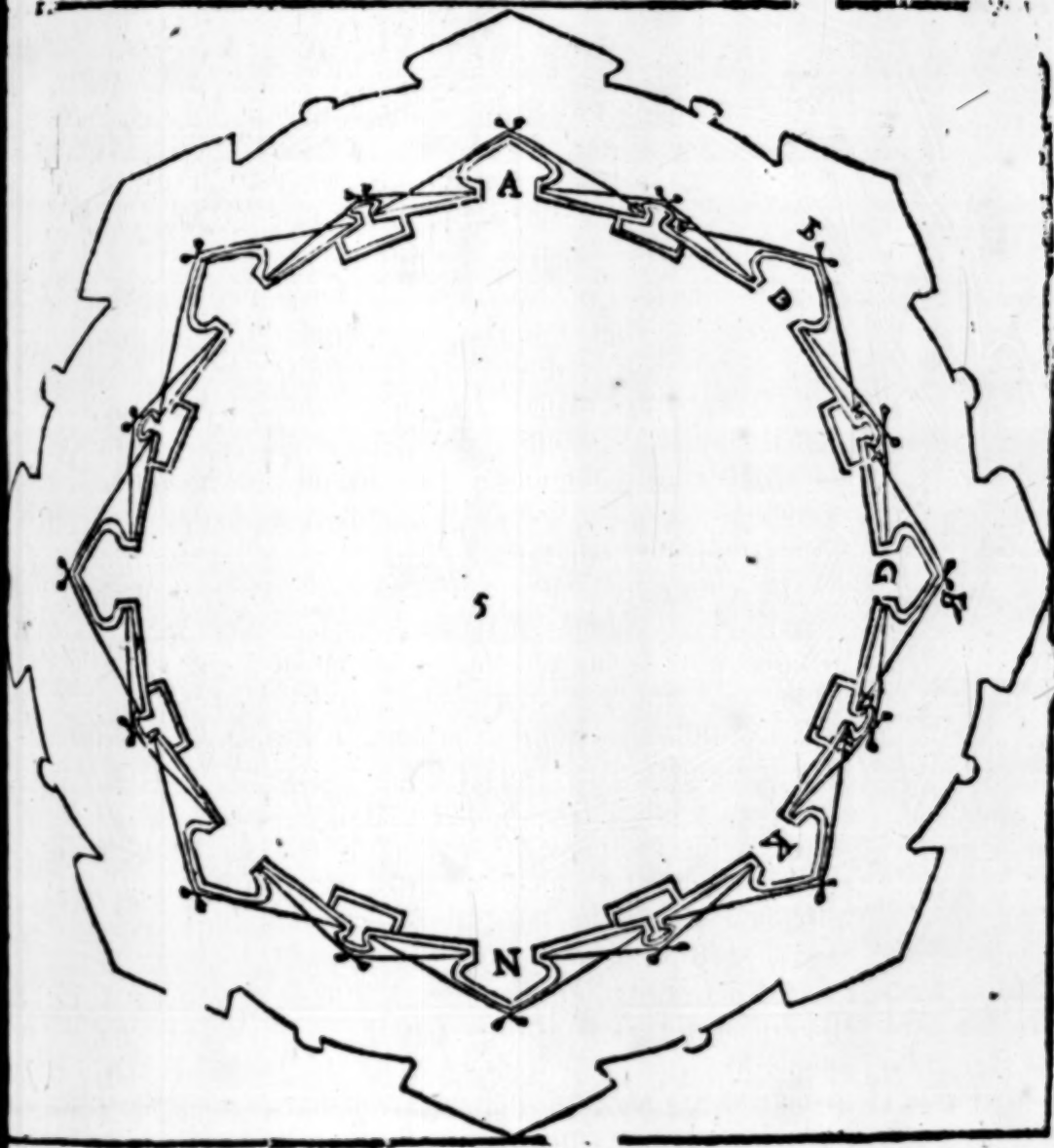
Before being shewed concerning the perfection that for the fashion of fortresses is requisite, how they ought to be builded with a number of corners, proportioned neuertheless with a iust length of the curtin, and a sufficient distance betwene euerie Bulwarke, so that y more that with like conditions to the circular fashion it resembleth, so much the more it becomuneth perfect. There now remained to be considered, what fashion is to bee iudged of most perfection, either the same which without any edification placed in the middest of the curtin thereof, shalbe builded, or that which shall haue either caualiers or platformes, or what so euer other maner of edification or figure, that for to defend the curtins of the bulwarkes may be placed: or whether it be of those fashions, which vnto this present hath bene vsed of other in building, or some new maner that might bee deuised. Therefore in this part leauing to reason of those, that shall haue caualiers or platformes, as also of those bulwarkes that the curtins shall haue, which from the one to the other most straightly without other edification placed in the middest do shew, for this time I shall onely shew a new fashion, the which I iudge to be the most perfectest, that is possible to be imagined, as may be scene by the lines that are drawen from y plaine platte of y number of 3. & by the plat that is raised vp of the number
ber

ber of 4. here vnder figured, which resembling so néere the circular figure, as the due length of the curtin will suffer, they shall haue this difference from the other which directly are distended, that the curtin being made backe a conuenient distaunce, that space may be left méete to make from the one and the other point of the same retire, a flanker, as two like flankers may bee seene, in the plaine plat of the number of 3. by the letters E. and F. and in the plat that is raised vp of the number of 4. by the letters A. and C. they shall haue commoditie to direct their ordinaunce to flanke, as well high as low, like vnto those that are commonly built now a daies: whereby not onely the same space of the curtin, that is betwéene the one and the other of them shall be perfectly defended, as may bee perceiued by y^e plat of the number of three, by the line drawen from the letter E. to the letter F. But also that which lieth betwéene them and the bulwarkes, as in the said platte, by the lines that describeth the manner of the shotte the one from the letter E. to the letter S. the other from the letter F. to the letter R. may be vnderstode, and likewise the curteines of those bulwarkes, as also in the verie same, by y^e line that is drawen from the letter F. to the letter Q. is shewed, with a better maner than in other fashion of building that is vsed can be defended, so that all the partes of them shall not onely be made to bee able to shote by flanks, but also thereby to shote by right line, as in the platte of the number of soure, by the line that passeth from the letter C. to the letter D. and from the letter A. to the letter B. may bee perceiued. And whereas they may be builded with lesse cost then otherwise, they haue also commoditie to make their gates equally distant the one from the other, from the next Bulwarkes: where they are placed most safely and commo-
oullie with great strength, and those gates bee as

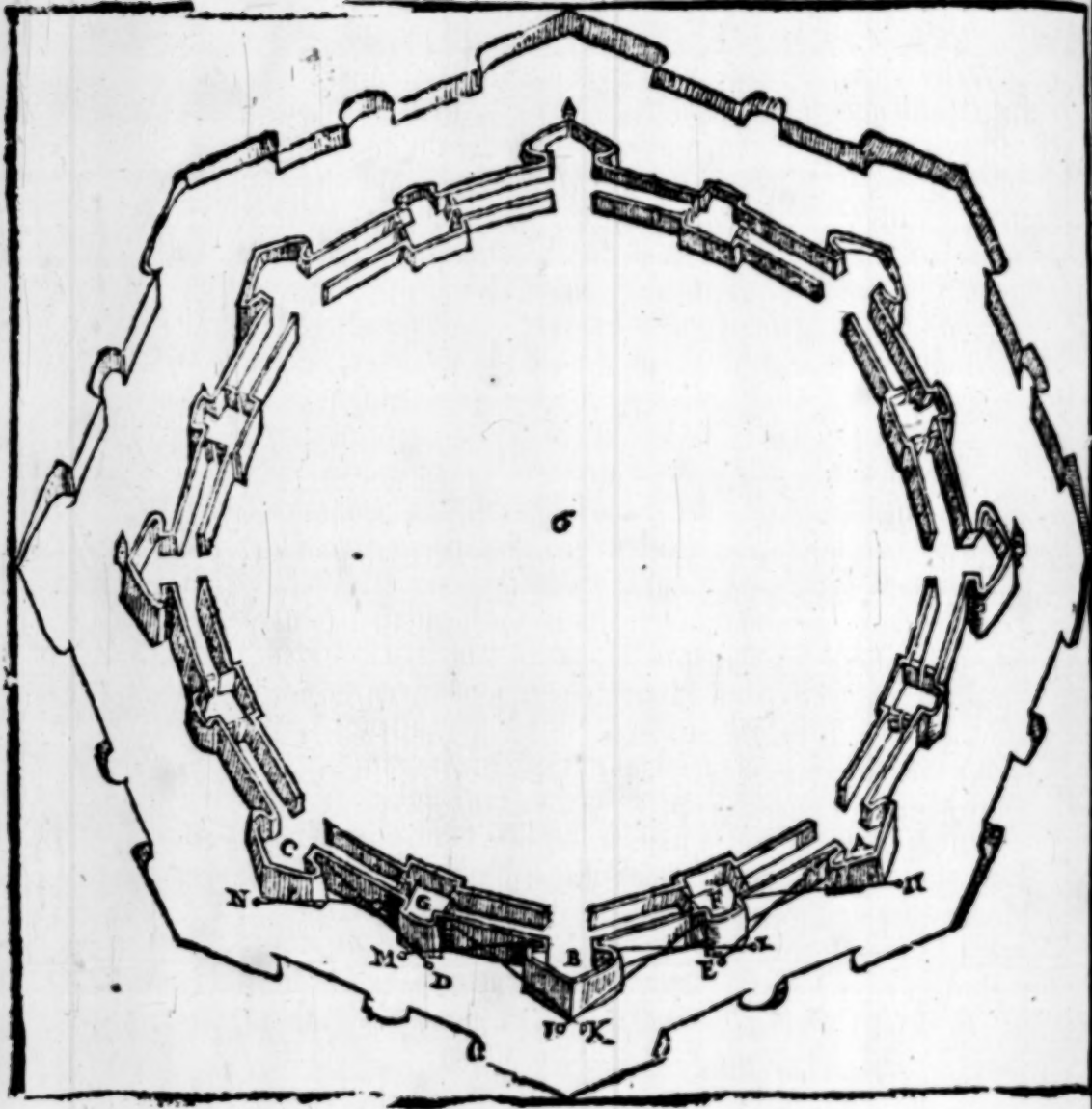
Plattes.

well, as all the rest of the wall, and greatlier in that part, much surer from the assailing of the enemies, then in what so euer other maner of fashion might be deuised: for as much as the platformes and caualiers be nothing so strong, but more easie to be ouerthrowen, in respect to this maner of building, which is most sure from such daunger, and exceedingly well defended from the force of the enemy: to the which, the nerer that the enemy shall approach, so much the more he shall of those within be hurt, contrarie to that, which in the platformes happeneth. Moreover there may be certaine slaughter houses built in the ditch, as in the plat of the number of 4. by the letters F. H. is shewed, which the enemies with great difficultie must first seeke to win, before they can come nere the walles. And those being wonne, shall be but small prejudice to the towne or fortress: wherefore without comparison, this fashion is greatlier to be praised then the same with platformes, for that the nerer the wall, the enemy shall come, so much more from the bulwarks by flank, and all most on the backe, and from other places, both by flank, and by front in one instant, he shall be hurt and stricken. Where also in such a kinde of fashion with many corners, the greatnes and roome of the towne within, is somewhat diminished, in respect to those that are made with platformes. Therefore I conclude, for the considerations aforesaid, these to be the most perfectest fashions that any strong fortress, is possible to be made.

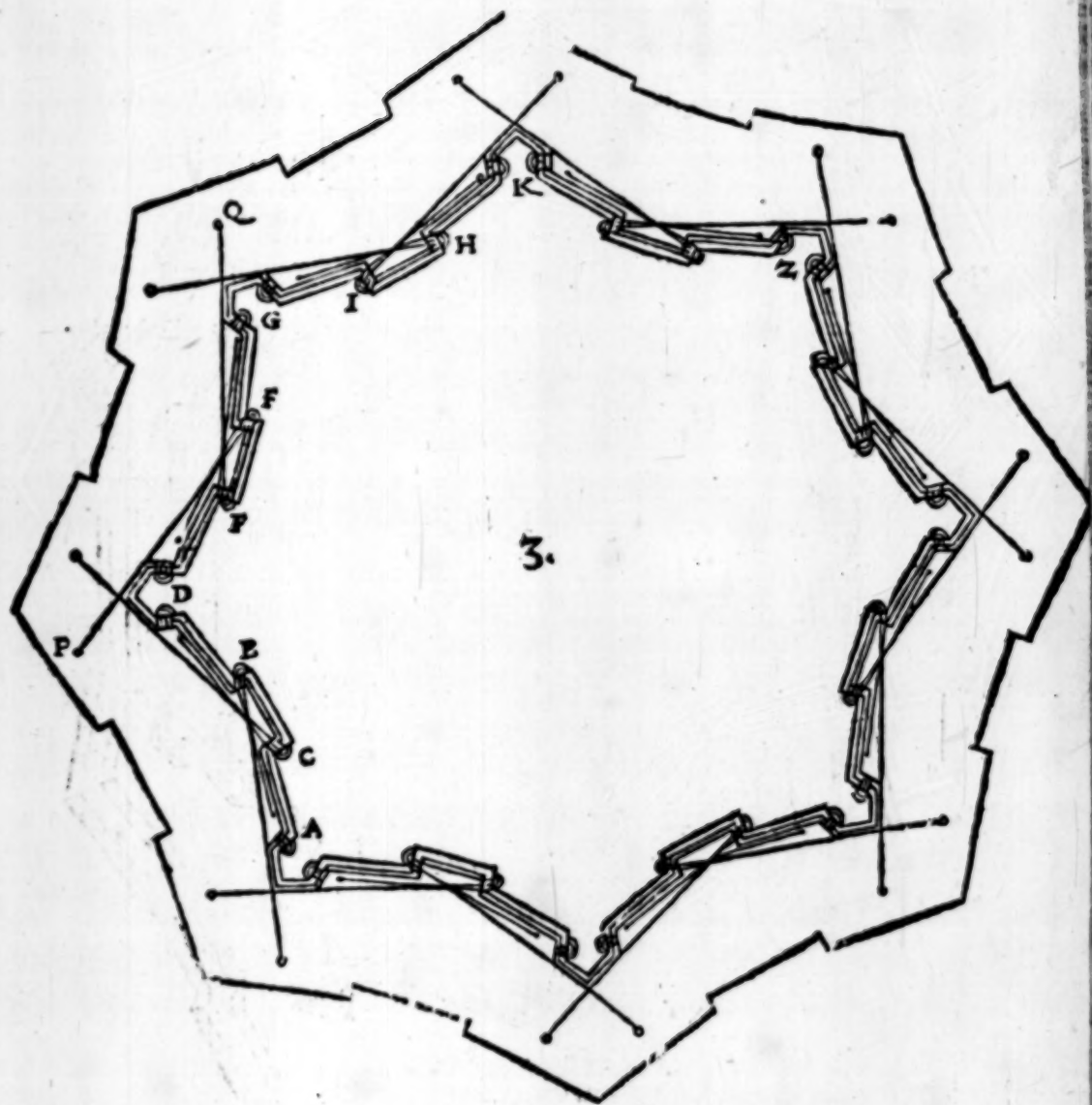
of fortification

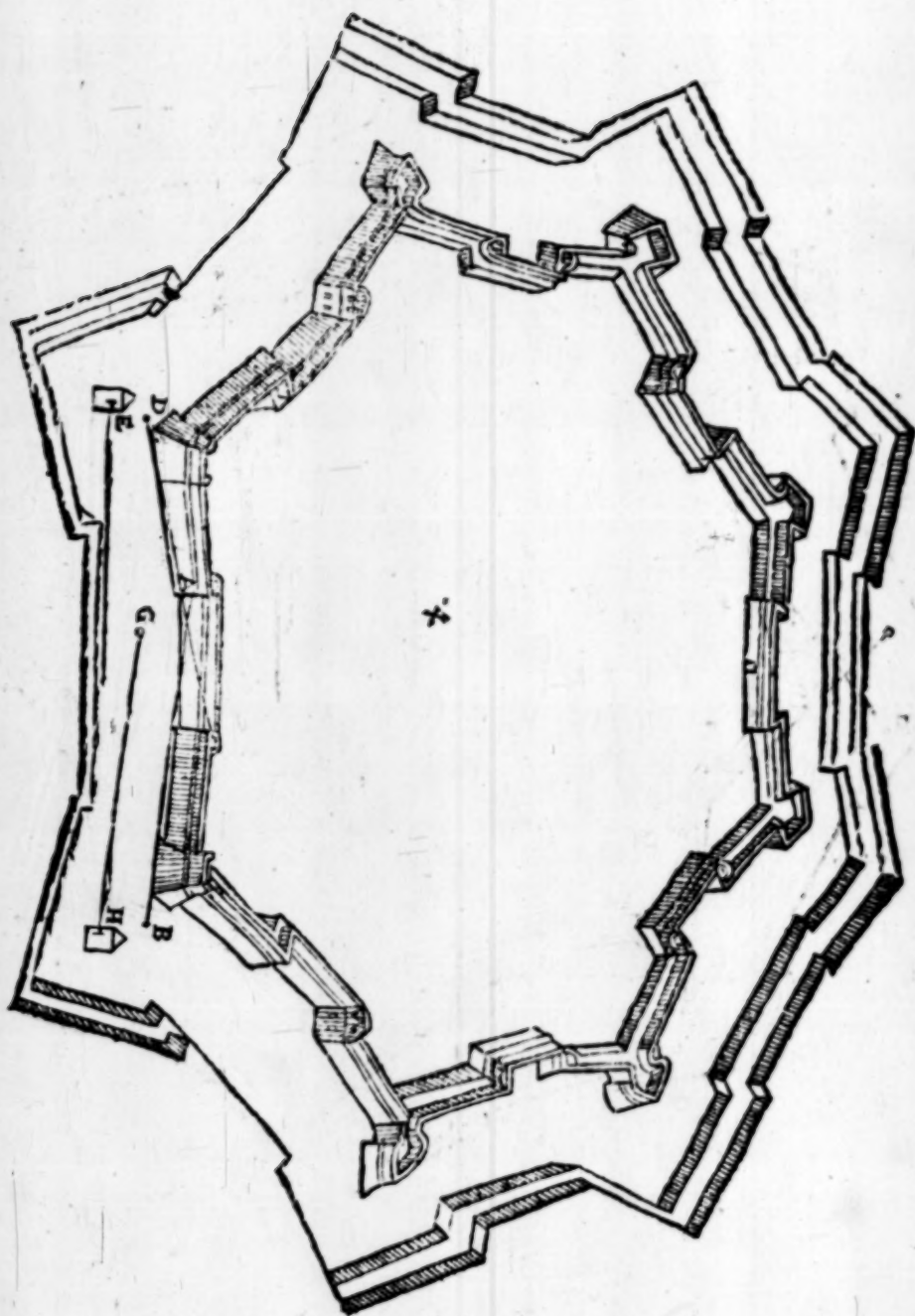


Plattes



of Fortification.





¶ An example of the quadrant forme to prooue that it causeth debilitie and weakenesse.

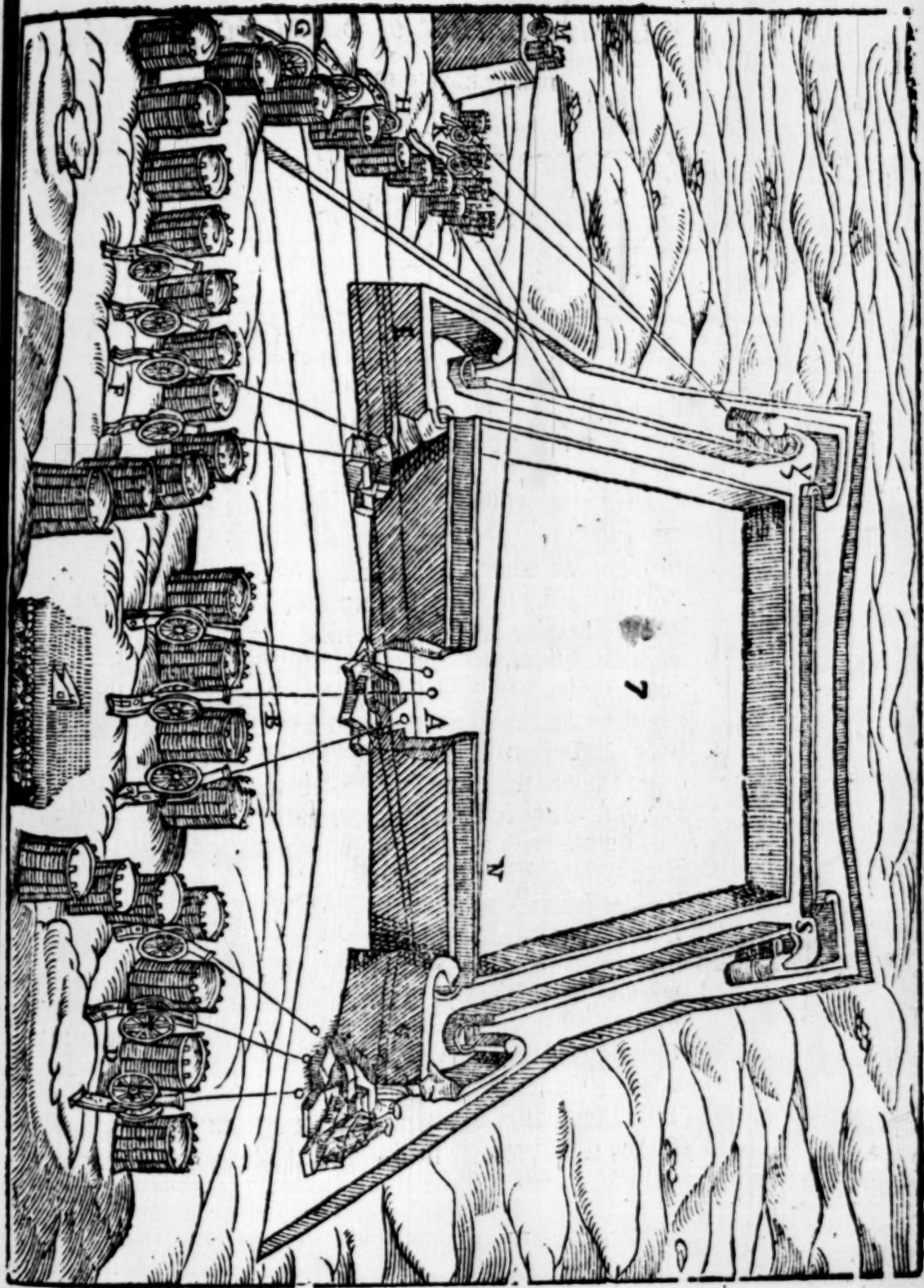


The Townes and fortresses that are builded after a four cornered fashon, in what so euer maner they be made, are subiect to most great inconueniences: for that the sharpe corners of their bulwarkes, which of necessitie the same fashon will cause them to haue, may verie easily be battered, and vnder the ruine thereof, the assaults of y^e enemies defended, as in the platte following of the number of 7. by y^e bulwarke C. battered of the artillerie D. is scene. Whereby also may be perceiued how the ordinaunce may be planted to make a breach, and to take away their flankers, after such sort, that the enemies may safely approach to any place, either marching in battel ray to incampe, or assault, or with piansers to worke, or for any other purpose, as by y^e foure flankers of the three bulwarkes. L.E.C. may be vnderstand, the which of the artillerie. H.F.K.G. not onely are battered, but also two of them that haue the letters, L.C. as is scene, may of the artillerie. K. G. be beaten through their flankers, & the backe of their bulwarke. E. nearest to them which is on both sides of the flankes battered, the which for hauing in such place lesse thicknesse then any where else, and great height, may be the more easilier rinated, as is to be scene in the said bulwarke. E battered with the artillerie F. and H. and also by the breach of the batterie, which in the cortin is made of the ordinaunce B. as is scene where the artillerie G. by the cortin doth beate through the same in the breach of the batterie A. as manifestly appeareth: and more

Plattes.

ouer when they within would do any thing, they shal
be beaten with the artillerie ouer the wall within the
coztin N. from the caualier M. without, so that no man
shall be able to stand behinde the same to defend. And
not onely in this sort, but in sundrie wise, and in di-
uers maners, what soeuer towne or fortesse is built
after such fashion, may easily be battered and some
made sautable, whereby without further decla-
ration it is plainly to be vnderstode,
how much the foresaid plattes,
of the other fashion ex-
cell this.





*Of the nature of Salt peter, and the
maner how to make and refine it.*



Alt peter is a mixture of many
substaunces, gotten out with fire
and water of dyie and durtye
ground, or of the flower that gro-
weth out of new walles, in sel-
lars, or of that ground which is
found lose within tombes, or deso-
late caues, where raine can not
come in: in the which ground
(according to my iudgement) the same is ingende-
red of an ayyie moistnesse drinke up, and gotten
of the earthy Dynes: whose nature (by the effect
thereof) considering, I can not tell how to bee resol-
ued, to say what thing properly it is. The well lear-
ned and most wise Philosophitions (besides medicinall ex-
perience) by the tast (finding it salte, and with excee-
ding sottill sharpnesse, and considering the great byting
thereof) suppose verily that it is of nature hotte and
drye: on the other part seeing it to be a thing ingendred
of ayye, and touched of fire to fall in a flame, and va-
pore, and rise with a terrible violence (as the same com-
pounded, is seene by Gunpowder most manifestlie de-
clared) seemeth to be of an ayyie nature, hotte and moist:
and againe seeing it with shining and glittering whit-
nesse, as a thing to the nature of water conforma-
ble, it seemeth that it may bee said, that it is of
a watery nature, finding it heaue: to which may
bee ioyned the experience of the tast, and of the excee-
ding coldnesse that in Sommer it causeth the water to
bee of, wherein it is put to keepe Wine cold, as they
use in Italie, and by the brittlenes thereof, it may be
thought to be of the nature of earth: and so much
the more, where burning it with as much bym-
stone, it will tourne into a hard white stone: so that to con-

conclude, it seemeth that it hath the soueraintie and qualitie of euerie Clemente . Now of this auncient writers, was called Nitro: and Plinie in his naturall historie in the . xxxi. booke sayeth, that it differeth not much from salte: whose nature seemes also that vnto Whistons hath not bene hid : and it is found in many places, but the best is found in Macedonia: Albeit the late writers specially they of our partes, say that Plinie, and the other writers beleued that it was minerable : and peraduenture they are deceiued: for that there is of the artificial : which hath the very same vertue, and as some thinke, more stronger of nature: and is found for the very same medicinall effect, better then the naturall. Now this (as I haue sayd) is drawen forth from the said durty earth, so that the earth dries by raine hath not ben extinct : but the most excellentest of all other , is made of the dunge of beasts, conuerted into earth, in stabelles or in dunghilles , of long time not vsed: and aboue all other, of the same that commeth of hogges, the most and best is gotten : whatsoeuer dung it be of, it is requisite that by continuance of time it be wel resolued into earth, and the humiditie thereof dreyed : yea and it is needefull that the same earth be as it were dustie . To minde to haue a way to know whether it be good , by the tast of the tongue it may be felt if it be biting , and how much : and finding it strong , so that you determine to worke of it (making a great quantitie) it is necessarie to prouide many Cauldrons , fornaces , barrilles or tubbes : and likewise wood, white lime , and as shes of olde oke: but chiefeft must be prouided a great barne, or other walled house nere to the water (whercof it is needefull to haue enough , as also of earth , both commodious for the place, and likewise euerie other thing.)

But first the fornaces must be made for the cauldrons , and they must be placed thereon , as those be that

The making and refining

that the diers vse : then there must be prepared ioyntes as long as the house , and so broade , that commodious lie aboue ground may stande buttes with their heades knocked out, square chestes , barrells or tubbes to the number of .50. or .60. or .100 , (according to the cauldernes , and the capacitie of the place) and betwene euerie two of those vessells , there must be set a halfe tubbe to receiue the watter that shall run out : or there would be placed a channell of wood that may go along vnder the holes of the vessells that are set aboue ground, so that it may conuaye all the water that cometh from them, into a great tubbe or two, sufficient to hold all the water full of substance of Salt peter : and the buttes that haue their headdes knocked out , or barrells or tubbes , in the bottom of euerie of them there must be made a hole on the one sayd , with an Awgar, or else three or fouer littell holes made with a good big perser : & vpon them must be layde a littell thin linnen cloth or else y^e end of a brome, or some straw, to y^e intent that it may keepe the earth vp , and straine the water that shall be put amongst the same earth which is to be wrought , when it is tasted with the mouth , so that it bee certaine that it containeth , Salte peter.

Then there must be made thereof , in the midst of the house where it is to be wrought , a great hill, next vnto which must be made an other halfe so bigge, which must be made with two parts of vnslaked lime, and three of oke ashes, or other ashes, which in tast are verie strong and sharpe : and then the one hill must be well mingled with the other , and with the same composition , the tubbes must be filled that are set a loft vpon the ioyntes , within a span of the mouth , or else (minding not to mingell with the earth the ashes and the lime together) you may put first a spanne thicke-
nes

nes of earth in the bottome of the tubbe, and then thre fingers thickenesse of the so: layde lime and alshes: and vpon the same after, an other spanne thickenesse of earth, and on that likewise, an other thre or foure fingers thickenesse of lime and alshes: and so putting one rewe of one thing, and an other of an other, you shall fill all the buttes and tubbes, or other vessels that you haue placed, euen as aboue I haue said, within a spanne of the mouthes of them, and the rest that is then emptye, which you left, you must fill with water: the which running through all the earth, by a litle, & a litle you must let it droppe in the tubbes y stand vnder to receiue it, or in the gutter or channell, or where you list, so that it be conuaid into one or into sundrie tubbes, or where you thinke good: and so you must see well that you gather all the water that you powred vpon the earth, after it is passed through the holes of the bottom of the tubbes, in such wise, that it bring with it all the substance and vertue of the Saltepeter that was in the said earth: whereof by putting some of it on your tongue, you may tast: and finding it biting and very salte, it is a token that it is good and that you haue done well: if not, powre it againe vpon the very same earth, or vpon some other new: but finding the first earth full of substance: as much as sufficeth, you may againe powre vpon it more water, to wash better the remnant of the earth: albeit this second water would be saued in an other vessel, and after this, the earth may likewise be washed the third time, to the intent that all the substance thereof, may perfectly be gotten: but this second nor the third, ought not to be mingled with the first, if it happen not to come of the verie same tast: the which I beleaue that it will not: but it must be put by it selfe in other vessels, so that it is good to powre vpon the chaunge of the next earth, and so you may pro-

The making' and refining

cede, gathering a good quantitie of such water, taking hēde neuerthelesse, that it be full of the substance of Saltepeter: the which if it seeme vnto you, not of the same perfection, as you would haue it, you may powre it againe vpon the very same earth, or vpon other newe, till such time as it satisfie you, and that you knowe, that it be full of the substance of Saltepeter.

Besides this, there must be made a furnes with one or ii. cauldrons of brasse walled thercon, which must be as great as those that the Diers vse, & these cauldrons must then be filled, with the foresaide Saltepeter water: the which (as alreadie I haue tolde) ought to be as full of substance as may be, so that it haue about the ii. third partes, and make it faire and softly to boile so much till it come to one third part, or there aboutes: and after take it of, and put it to settell in a great vessel, couered, which must be well bound about, with ropes of yron, and sure and close in the ioyning thereof, to the intent it spill not: and thus when the same water is settled and well clarified, and from the earth and grosse matter, which in it remained, diligentlie purged, it must be taken out and boyled againe of newe in the same cauldron, or in some other: and so, as much as euerye time that it boileth, if it be not taken hēde of, it turneth into skum, and sometimes swelleth so much, that often times running ouer it spilleth, and carrieth awaye therewith much of the good: the which minding to remedie, you must take three partes of Oke ashes, and one of lime, and moreouer, in euerye hundred pound waight of water, there must be dissolved foure pound of roch Alum: and when the cauldron boileth, take of the saide water with a pot, and powre into it ones or twice, and specially when you see the Saltepeter water rise in skum, which in a little while you shall see it alate, both clere
and

and faire, and of an azur colour : and it must be boyled
 so long, till all the thime watrinesse be vapoized away,
 and the substance of the salt peter thicken : so that
 it being taken out, and put in chesses or tubbes and co-
 led, may congeale, the which is best done, when the
 water is brought to least quantitie, taking it out, and
 putting it into a lesse caudron, wherein it will soner
 congeale: the which water being tasted, and seeme to
 bee brought to such passe, to be readie to congeale, you
 may take it out, and put it in vessells of wood, or of
 earth that are rough within, with certaine stikes of
 wood, to congeale, and so you shall let it cole, and rest
 3. or 4. daies, so as it may droppe, and be strained
 through some litle hole in the bottom of the vessell, and
 all the water y^e is not then congealed, you must take
 out and saue for to seeth againe, and the salt peter that
 is in any quantitie congealed, you shall finde to be ac-
 cording to the vertue that was in the water, or in the
 earth: but the clerenes and fairnes thereof will come
 of the maister vertue of the water, that is put into
 it in the boiling which hath strength to purge it & make
 it come, as it were refined in y^e first seething: now this
 being taken from the sides of the vessel, where it con-
 gealed, and in the water therof washed, you must lay
 it vpon a table to drie thoroughly: and the same seeming
 vnto you to haue neede, or neuerthelesse minding to
 haue it aboue the common vse, for some purpose, more
 purified, and without earthy grossnesse, & altogether with-
 out fatnesse and saltnes, which for to make exceeding
 fine powder, or aqua fortis, is most requisite so to be: to be
 short, for what soeuer cause it ought to be refined, I
 counsaile you to do it after one of these 2. waies, which
 here following I shall teach you. The first which I like
 best, is with water, and the second is with fire, with
 water it is refined in this maner, taking of the foresaid
 mixture made of lime, ashes, and allome dissolved, and
 then

The making and refining

then for euerie barrell of water that you haue put in the cauldren, for to dissolue the Saltpeter, you must put into it fire potfulls of the foresaid strong water: and in the same quantitie of water so prepared, put so much Saltpeter as you thinke may well bee dissolued: and with boiling make it to resolue verie well, and seeing in boiling to haue cast vp scumme, you shall then take it out of the cauldren, and put it into a tubbe, in the bottome whereof, you must first haue put foure fingers thicknes of fine sand cleane washed, and that must be couered with a linnen cloth: and by a litle hole made in the bottom of the tubbe, you shall suffer it to droppe by litle and litle into some other vessel set vnder to receiue it: & so this water thus strained, you must after put in the verie same oz in an other cauldren to boile againe, and to make the greater part of the same water, that you put into it seeth away: finally make it boile so much, vntill you see it readie to thicken, powring now and than, in making it, a litle of the foresaid strong water, and speciallie when it swelleth and casteth vp scumme: and this thing (being so handled) you must take out of the cauldren, and put it in Chestes or other vesselles of Wood, to congeale: which being a great quantitie, in three or foure daies, you shall finde all that congealed, which will congeale: which being taken out, you must order as you vsed afore the other: and the same water that is not congealed, must be boiled againe, and so you shall doe from time to time as it gathereth together and congealeth: and after this sort you shall make the Salt peter most white and faire, and much better then at the first seething.

Also Salt peter is refined in an other maner, which is with fire, but in a litle quantitie minding to do it well: and although it be a readie way, yet few vse it: albeit it serueth to get out the fatnes of salt peter

ter, for that it sendeth into the bottome verie much earthines, notwithstanding I like better the foresaid way in purging it with water, then this with fire: But to do this, take a Salet, or some other yron, or brasen vessell, and fill it with salte peter, and couer it with a couer of yron, brasse, or earth, so that it be made bigge ynough, meete to be taken off and put on when you list, that the vessell may be well couered: and then it must be sette in the middelt of a good fire of coles, and so the salt peter will melt, which is sone perceiued of the expert artificer: but when you thinke that it is molte, looke vpon it: and if it be not wel molten, couer it againe and let it melt well: then it being well molten, take bymstone most finely beaten in powlder, and straw some thereon: and if of it selfe it take no fire, doe you kindele it: and being kindeled let it burne till such time as the bymstone be all consumed, so that nothing else be burnt, but the vpper part, and certaine grosse vnctiousnes of the Salt peter, the which when it is burned, will leaue the rest faire and cleare: and then it must be taken from the fire letting it coole, where in the vessell you shall finde it (when it shall be cold) all in one peece white like vnto a peece of marbell: and all the earthinesse thereof remaining in the bottom, which shall be good salt peter to make powder withall, but not verie commendable to any other vse: and about salte peter the witte of men haue so much imagined, that meanes are found to cause it to grow in the ground, and in places, that neuer had any before, by dissoluing Salt peter in water, for with the same water wetting the ground, and letting it stand so a certaine space of time, salte peter will be ingendred, so that the same that was put there, will multiplie wonderfully: and it is a most certaine thing, that in making Salte peter, the earth that hath bene occupied, heaped vpon a

The making

place that is couered, so that the raine do not wash it, within the space of fīue or sixe yeares, may againe be laboured, and salt peter shall be found to be ingendred, and yeld much more, then it did the first time, and this that I haue declared in this chapter, is as much as I can say of salt peter.

¶ The maner how to make all sortes of Gunpouder, Chapter xxiiii.



Gunpouder, is made of three samples only, that is, salt peter, brimstone and coles, and some proportioneth it after one fashion, and some after an other, and also according to the Gunnes, and purposes wherewith they will occupie it. For that one sort is occupied for great ordinaunce, and an other sort for lesse peeces, and this is known to euery Bombardier: In Harkabuses, and hand guns, is not occupied common pouder, but about certaine fire workes: and therefore to euery of the said purposes, the pouders is proportioned accordingly. For that if Serpentine pouder, should be occupied in hand gunnes, or Harkabuses, it would scant be able to drive their Bellettes a quaites cast from their mouthes: and if hand gunne pouder should be used in peeces of ordinaunce, without great discretion, it would quickly breake or marre them: and to minde to haue all sort of pouders good, three things is requisite to be obserued, in making thereof. The first is to see, that the substance wherewith it is made, haue no earthie grossenesse. The second, that it be finely beaten: the third, that it be verie well dyed, from all humi-

humiditie or moistnesse, and this done, you shall haue strong and excellent good powder, and it is to be vnderstanded, that the chiefe thing that is in powder, is Saltpeter: for that of it (by the same that is seene) dependeth all the force. And therefore prouision is to be made, to haue a good quantitie thereof, and that it be cleane and nete: the which by burning, may well be knownen, for that in all sortes of powder, it is needefull, that the Saltpeter be good.

Now, for to make common powder, for great peeces of artillerie there must be taken thre partes, of refined Saltpeter, two of Willow coles, & one of Brimstone, and grinding euerie thing: all must be well mingled together, and all the moistnesse thereof dried by, as I haue saide. To make powder for small peeces of artillery, there must be taken fixe partes, of refined Saltpeter, and one and a halfe of Coles, and one of Brimstone, and grinding it most finely, & mingling it well together, it must be coyned, and then dried. The maner of coyning all sortes of powder, is with a Seue made, with a thicke skinne of Parchement, full of little round holes, into the which Seue the powder must be put, while it is dancke, and also a little bowle, that when you lifte, it may roule by and doune, vpon the clots of powder, to bryake them, that it may coyne, and runne throughe the holes of the Seue.

To make Harkebuse and hand Gunne powder, there must be taken tenne partes of refined Saltpeter, and one of young hasell coles of a yeare olde made cleane, and one parte of Brimstone, and beating all in a mortar, or grinding it exceedingly well that it may be mingled to gether and so fine as is possible, then it must be coyned and thoroughly dried. And note that if it be not marueylously well beaten, it will neuer be good. But because making of powder, which are of thinges that will easylie kindell, cannot be without
perill.

The making

perill of him that maketh it, except it be remedied with wetting: therefore it behoueth to take heede that it be not beaten drie, as well to auoid such perill, as also for that it will be beaten better: for which causes it must be wet with comun water to a certaine degree of moistnesse, so that taken vp in ones hand it may cling together. Some moist it with vinegar: and some, for to make it more stronger, with camphored, aqua vitae. Whē I haue caused gunpowder to be made, I haue used comun water, and therefore I am able to say which of those thinges is best: and to tell my opinion, I doubt whether vinegar or aqua vitae, causeth the gunpowder to be any better then y comun water: for as much as they vaporizing awaye, as they doe, and as of necessitie they must, I beleue that littell of their substance remaineth.

There be some which in making cole (besides willow) make them of hasell: and some of vine stickes, and some of bay stickes: some of reedes: some of kexes: and to be short, all the coles that are made of soft wood, are of wood which haue much pith: but it is requisite that they be small, young, and tender, and without hardnesse of knottes: otherwise they be not good.

Albeit they be made in diuers maners: but in making of any great quantitie of powder, the ordinary cole is to be taken: and making a littell they vse to take young hasell of a yere olde, cut in short peeces, and they putting them into a great earthen pottle, or other vessell of yron, or brasse, they shutte it and couer it close, and lute it, or daube it very well about, so that it cannot breath: and then they make fire rounde about it and vpon it, till such time as it may be thought that the heat is well entered in through all, and that the wood that is within is very well fired: and without firebrandes, or flame, burned onely through such heate: and then they take the fire from the pottle and let it cole,

How to make
cole where
with gunpow-
der is made.

cole , and so they finde the same wood become cole . I hapning once to haue neede of coles (to thintent to make some quickly ,) tooke as many dry hasel sticks that had their rindes seraped of, as I thought sufficient to serue my purpose : and breaking them in peeces and laying them close together on a heape , I set them on fire and burned them all well, and then sprinckled water vpon them with a browne, and with the same wet browne quenched the fire: and so scattered abrode the coles here and there , alwaies sprinckling water vpon them till I quenched them: and thus I haue serued my purpose without so much difficultie.

Moreouer it is a very profitable thing , yea and a necessarie, that I declare the maner and facilitie of beating it , for to be able safelie to make a great quantitie thereof . In olde time they were wont to grind gunpowder with certayne handemilles , as they vse to grinde corne , but (besides the paine) it is a way verie perillous : for that such a composition ground together with stones , will catch heate in such wise that it will some ingender fire, inesppecially euery thing being a matter disposed to fire : as also by rubbing together with violence a couple of baye stickes , you shall straight way kendell fire . Some grinde powder in such milles as they vsed to grinde crabbes or appels to make bargis or sider : and some hath it stamped in morters with a water mille or a horsemill , which way is the best of all other , and most surest and also it is beaten finclier, and with lesse labour and paine : Some (that hath not the comoditie of water) make a great wheele , deuised after such sorte , that with the cogges thereof it may raise vp many heauy pestels, which falling, beate in diuers morters of woodde made in a beame of oke, of the which there be some haue the bottomes of brasse.

Some stampe with their armes, with a great pestel

The making.

tied to the ende of a pole with a corde , right ouer a moyter of wood oꝝ byasse , and so they beate the easel : other some beate it in a stone moyter with the mouth somewhat large , with a wooden pestell, with the handell thereof made like vnto a hammer oꝝ a mall. And these, and other, that may be made, is as much as about the deuise of beating and making gunpowder is needefull.

They haue vsed heretofore to waigh euerie matter by it selfe , and then they haue gone mingling and beating all together : There haue beens after , some that haue deuised to beate euerie thing seuerally by it selfe, and then mingelled altogether and made it . But finally the best and most readiest way , is to take a quantetie of Saltpeter , wherewith you will make your powder , and put it into a cauldron with so much water (as being set vpon the fire) may be thought sufficient to dissolue it : which so soone as it is resolued, must be taken of and set on the ground in a colde place : and the quantetie of beaten coles that is sufficient , must be put into it , and so stirring it about, must be mingled well with the Saltpeter dissolued : and then taking your brimstone finely beaten in powder , and with a staffe stirring about the coles and the Saltpeter , you must straw it finely vpon the same, as well as you canne , with continuall stirring and mingling them together , which composition thus made , you must then drie somewhat in the sunne: and then to haue it excellently well made, there needeth no other to be done , but to beate it altogether , to the intent that it may incorporate most finelie , which done , you must drie it with most great diligence : and then sift it verie well through a sieue, and moistning it againe with water oꝝ vineger, stirring it somewhat together in a sieue , you may coyne it as already hath bene declared : and then againe soꝝ to occupie it about
your

your businesse, you must drie it well: and so being dried, put it into drie vessels of wood to keepe: and set it in the highest places of your house, where few commeth for diuers respectes: and though it were for no other, at least to keepe it drie. They that are expert, know good powder in this maner, by the colour: for that if it be verie blacke, it is a signe that it is made with verie much coles: or that it is moist: and when you rub it vpon a peece of paper it will blacke it more then it ought to doe, and drawing it with your finger, you may see whether it be finely beaten or no: for it must bee so much beaten that nothing, neither of salt peter nor of brimstone be discerned in any wise: for with reason they ought not to be seene: they take also for a triall, three or foure coynes of powder, and lay them vpon a white Paper, distaunt thre fingers the one from the other, and fire one of them: and if the powder bee good, you shall see them all to fire at ones: so that there shall be no residue remaining, neither grossenesse of Brimstone, nor of salt peter, nor of any other thing, and the paper not burnt.

And if it bee not so found, they know that it is cuill made, or not good, but full of earthinesse of salt peter: or that it is moist, so that it is naught for shooting of ordinaunce, besides the perill that it putteth them in. And vndoubtedly naughtie powder, is a rost halfe cast away: and it is a great fault in him that maketh it, or that causeth it to be made: for that in time of neede, it is of no effect, and causeth much shame to the Gunners, which occupie it: and therefore diligence ought to be vsed, and good heede taken that it be made according as I haue taught. There are many which bring vp lies, saying that they can tell how to make powder, that shooting in gunnes shall make no noise, the which is impossible, the fire and the aire violently encountering together, where besides that

The making.

they are not able to do the same they say, with a peece of ordinaunce, they are lesse ab'e to do it with one of those potgunnes of elder, that boyes vse to shoote paper and floures in, by the noise of which may well be perceived, that al proceedeth of breaking of the aire. Also there be many that say, that they can make white powder, that shall not blacke ones handes, by putting in a certaine thing in the steele of coales: some other, red, with dried red flowers, and other blew, with blew flowers: some other say that to make the powder of more force and strength, that it is verie good to put to euery pound of bymestone an ounce of Mercurie, the bymestone being first put in by a litle, and a litle. Moreover there are some other that say, that for to make the like, there ought to be put to euery pound of salt peter, a quarter of an ounce of salt armoniacke: some other there be also, which say, that in steele of coles, it is better to take linnen cloth and to burne it to tinder, and therewith to make powder, which is more excellent than any other cole that is possible to be vsed, about such a purpose. And although that in my iudgement I haue declared alreadye the best receites, that is for the making of al sortes of gun powder, yet to the intent that it may be vnderstande how much men haue trauailed and imagined to bring the same to all perfection, I haue thought good to shew here following diuers moe receits both good and bad, which for the making of powder hath bene experienced of sundrie men,

The first inuention and oldest maner

in making of sarpentine pouder, or pouder
for ordinaunce.

| | |
|--------------|----------|
| 1 Salt peter | i. part. |
| Wimstone. | i. part. |
| Coles. | i. part. |

The next practise of making pouder
for ordinaunce,

| | |
|--------------|--------------|
| 2 Salt peter | iii. partes. |
| Wimstone | ii. partes. |
| Coles | ii. partes. |

¶ Pouder for ordinaunce of a newer making.

| | |
|--------------|--------------|
| 3 Salt peter | x. partes. |
| Wimstone | iii. partes. |
| Coles | iii. partes. |

¶ Pouder for ordinaunce not so olde.

| | |
|--------------|--------------|
| 4 Salt peter | xii. partes. |
| Wimstone | iii. partes. |
| Coles | ii. partes. |

¶ Pouder for ordinaunce not verie old.

| | |
|--------------|--------------|
| 5 Salt peter | ix. partes. |
| Wimstone | ii. partes. |
| Coles | iii. partes. |

¶ Pouder vsed of late daies for handgunnes.

v. iii.

6 Salt peter

The making

6 Salt peter
Sulphur.
Coles.

iiii. partes.
i. part.
i. part.

¶ Powder for ordinaunce vsed not so
long agon.

7 Salt peter
Sulphur
Coles

xx. partes.
iii. partes.
r. partes.

¶ Powder for ordinance vsed of latter daies.

8 Salt peter
Sulphur
Coles

c. partes.
r. partes.
xxvi. partes.

¶ Grosse Powder of a newer sort.

9 Salt peter
Sulphur
Coles

c. partes.
xx. partes.
xxvii. partes.

¶ Fine Powder of a making not verie old.

10 Saltpeter
Sulphur
Coles

ir. partes.
iii. partes.
vi. partes.

¶ Grosse Powder of a newer making.

11 Salt peter
Sulphur
Coles

ii. partes.
i. part.
i. part.
Barba

of Gunpowder

32

Harkabus powder of a
newer making.

| | |
|------------------------|-------------|
| 12. Saltpeter | iii. partes |
| Brimstone. | i. part. |
| Coles of willow sticks | i. part. |

¶ Fine powder of a newer making.

| | |
|------------------------------|------------|
| 13. Saltpeter often refined | v. partes. |
| Brimstone | i. part. |
| Coles of young hasell sticks | i. part. |

¶ Grosse powder of a newer making.

| | |
|-----------------------|--------------|
| 14. Saltpeter refined | iii. partes. |
| Brimstone | i. part. |
| Willow coles | ii. partes. |

¶ Powder of a newer making.

| | |
|---------------|--------------|
| 15. Saltpeter | v. partes. |
| Brimstone | ii. partes. |
| Willow coles | iii. partes. |

¶ Harkabus powder vsed now a dayes.

| | |
|--|------------|
| 16. Saltpeter very often refined | v. partes. |
| Brimstone | i. parte. |
| Coles made of Hasell twiggcs with the barke pulled | |
| i. part. | |

Hand gunpowder of a newer making

| | |
|-----------------------|--------------|
| 17. Saltpeter refined | xvii. parts. |
| Brimstone | iii. partes. |
| Coles | |

The making

Coles of hasell hauing their rindes pilled of.iiii. partes.

¶ Handgun powder of a stronger and of
a newer making.

| | |
|-----------------------|--------------|
| 18. Saltpeter refined | vii. partes. |
| Sulphur | i. part. |
| Coles of young hasell | i. part. |

¶ Finer and stronger handgun powder.

| | |
|---|---------------|
| 19. Saltpeter diuers times refined | viii. partes. |
| Sulphur | i. part. |
| Coles of young hasell twigges hauing their rindes pilled of | i. part. |

¶ Grose powder vsed now a dayes

| | |
|---------------|--------------|
| 20. Saltpeter | iii. partes. |
| Sulphur | i. part. |
| Willow coles | i. part. |

¶ Grose powder vsed now a dayes.

| | |
|---------------|--------------|
| 21. Saltpeter | rr. partes. |
| Sulphur | iii. partes. |
| Willow coles | v. partes. |

Handgun powder vsed now a dayes.

| | |
|---------------------------|-----------------|
| 22. Saltpeter refined bys | xlviii. partes. |
| Sulphur citrine | vii. partes. |
| Hasell coles. | ii. partes. |

¶ Handgun powder vsed now a dayes.

| | |
|-----------------------|----------------|
| 23. Saltpeter refined | xviii. partes. |
| Sulphur | ii. partes. |
| Hasel coles | iii. partes. |

The

¶ The maner that is vsed of charging and shooting
of ordinaunce . Cap.xxv.



As much as if Gunners should
chaunce to be slaine or otherwise
lacking, to the intent that euery
Souldiour in tyme of nede may
know how to serue in one of
their stades, I haue thought good
and necessarie to shew & declare
the maner of charging & shooting
of peeces of ordinaunce . Wherefore it ought to be
vnderstande , how much powder is occupied at once in
charging of euery peece , which most commonlie , is
two third partes , of that which the shotte or bullet
thereof waieyth : as for example, if the bollet of a peece
of ordinaunce waigh . xxi.pound , then there must bee
taken . xiiii.pound of powder for the iust charge of the
same peece . And then with a long staffe that hath at
the one ende a bob as big as the bollet of the peece, and
at the other ende a lable made for the same purpose
that will take so much powder vp at twise or thise, as
is a forsaide, the peece must be charged, after this sort.
Take the lable full of powder , and thrust it into the
Gunne so farre as it will go, and then turne your hand
with the lable that the powder may fall out and remaine
there behinde when you pull out your lable : which
done , you must with the bob ende thereof, thrust the
powder home faire and softly : and so with the lable
taking vp the rest of the powder you must do likewise,
and thrust after at the last a wispe of hey or of some
thing else, to sweepe all the powder together, and then
the bullet which must bee of a fit biggenesse for the
peece : And also an other wispe to stay the bollet for
roling out : and putting some powder in the touch hole
and about the touch hole , the Gunne is then charged.

I.

Pow

A discourse

How to leuell it , a man must stand directly behinde it , and with a leuer , tourne it this waye, or that way, till such time as it be brought to lie iuste , as a man will haue it , so that looking straight from the breach or hinder part of the peece as lowe as may be vpon the vpper part thereof , he may see the mouth of the peece to lye euen with the marke and as it were to couer it : which done , if the ground whereon it standeth bee euen, as it is requisite to be, and that the one wheele stand not higher then the other , giuing fire to it with a lint stocke which is a match fastened to the ende of a staffe of a yard or two yarmes long , you shall see the shot to strike the same thing that you shot at, if it bee within any reasonable distaunce . And for more speedie shooting of ordinaunce , the iust charge in powder of euery peece may also hand be prepared in a readinesse, and put in bagges of linnen or in great papers made for the same purpose, which in a sodaine may be chopt into the mouth of a peece with the bollet or shot thereof thrust after, as farre as they will goe, and then thrusting a long wyer into the touchehole that may perse through the bagge or paper wherun the charge of powder lieth within the peece , filling the same touchehole with coine powder so soone as it is leueled, it may incontinent be shot of : which maner of charging is done most quickly and a great deale sooner then any other way , and when hast requires, very needefull.



¶ How to get out quickly the nailes that should happen by treason, or otherwise to be driuen into the toucheholes of ordinaunce.

Cap. xxvi.



Vf it should fortune at some so-
daine assault, the toucheholes of
artillerie to be nailed up, after
such sort as they cannot be dis-
charged, or shot of, the speediest
way to vnnail them, is first to
charge againe all such peeces of
artillerie, with smaller builets
then their ordinarie: and when
they are so charged to leuell them toward those pla-
ces where neede requires, euen as they should haue
bene, if they had not bene nayled: and there must be
made a traine of Powder, along the bottom of the
Canes, from the mouthes to the bollettes of euerie
peece of ordinaunce: and to the intent not to shote
them in vaine, you may carrie for occasion, and oc-
casion seruing to shote them, you may giue fire at
their mouthes, where besides that they shall do their
ordinarie effectes, they shall all in the discharging,
be vnnailed, blowing out the same nailes, or pinnes
of yron, wherewith their toucheholes were stopped:
and so doing, of such nailing there shall happen no
great harme. But if some of them for being bea-
ten in harder then other, should chaunce at the
first not to be driuen out, then the remedie is to
charge them againe, and to shoot them off, after the said
maner, putting on the toucheholes a litle oile made ve-
ry hot, heating also first the place that is nailed with
a burning cole, making moreouer with clay, vpon
the peece, a litle Cuppe about the hole, that may
hold the hotte oile, that is powred vpon it, after such

A discourse

For, that through the heate thereof, it may soke into the hole with the yron in it, whereby the same yron shal then be made so slipperie, that at the next discharging of the peece the furie of the fire most easilie shall blow it out.

¶ How much the artillerie ought to be esteemed of the armies now a daies, and whether the same opinion of them which is had vniuersallie, be true.

Cap.xxvii.



Considering how many battails andordes of armes, were made of the Romanes at sundrie times, there is come vnto mee in consideration, the vniuersall opinion of many men, which is, that if in those times there had bene ordinance, the Romanes should not haue bene able to haue conquered, nor so easilie haue wonne the countries, and made the people their tributaries, as they did, nor they should not haue in any maner made so mightie conquestes. They say also, that by meane of this instrument of fire, men cannot vse, nor shew their strength and vertue, as they might in old time. And they adde a third thing, that they come with more difficultie to fight a field then they came in those dayes, nor there can not bee kept in them the orders of those times, so that at length the warre shall bee brought to consist altogether in artillerie. And minding to write, whether such opinion be true, and how much the artillerie hath increased, or diminished the strength of armies, and whether it taketh away, or giveth occasion to good Captaines to do valiauntlie, I will beginne to speake
con

concerning their first opinion, that the auncient Roman armies should not haue made the conquestes which they did, if the ordinaunce had bene in those daies. To which answering I say, how that warre is made either to defend, or to offend.

Where first it is to be examined, to whom these two manner of warres causeth most profite, or most hurt. And albeit there is what to say of either part, notwithstanding I beleue, that without comparison, they do more harme to him that defendeth, then to him that inuadeth. The reason is, that he that defendeth, is either in a Towne, or in a campe within a trench. If he bee within a Towne, this Towne is either little, as the most part of fortresses are, or it is great. In the first case, he that defendeth, is altogether lost: for that the violence of the artillerie is such, that there is no wall, how great so euer it bee, which in few daies it battereth not downe. And if he that is within, haue not space inough to retire, both with ditches, and with rampiers, he is ouercome, because he is not able to withstand the violence of the enemye, who through the breach of the wall, will after enter: nor in this case, the artillerie which he should haue, shall not helpe him: for that this is a generall rule, that where men in a throng, and with violence may goe, the artillerie cannot withhold them. Therefore in the defence of a Towne, the furie of the enemies cannot be withstood. Though y assaultes the which are not thronged, but scattered, which be called skirmishes be easilie withstood. And they which goe with this disorder, and coldnesse to a breach of a wall, where artillerie is, do goe to a manifest death, and against them the Artillerie preuaileth: but those, which assault a breach in a throng hard together, so that the one thrusteth forward the other if they be not holden out of ditches, or of rampiers, they enter in euerie place, and the artillorie keepeth

I iii.

them

A discourse

them not backe, and though some be slaine, they cannot be so many, that they shall not let the victorie. This is knowen to be true, by many expugnations of Townes made in Italie, and in especially in the same of Brescia: for as much as the same towne being rebelled from the French men, and yet the fortress being kept for the king of Fraunce, the Genetians for to withstand the violence, which from the same might come into the towne, had laid all the street full of artillerie, which descended from the fortress to the citie, and they planted them on the front, and in the flankes, and in euery other fit place. Of the which Mounfier de Foix made no other count, but with his squadrons, coming downe on foote passing through the midst of them, got the citie: nor it was not knowen that hee received by those any notable hurte. So that he that defendeth himselfe within a litle Towne (as hath bene said) and furdeth the wall on the ground, and hath not space to retire with rampiers, and with ditches, and is constrained to trust vpon his Artillerie, is ouercome straight way. If thou defendest a great towne, and where thou hast commoditie to retire, yet notwithstanding without comparison, the Artillerie is more profitable to him which is without, then to him that is within. First, to minde to haue a peece of artillerie hurt those without, thou art constrained to get thee by with it from the plaine ground of the Towne, because standing vpon the plaine ground, euerie litle bancke and rampier that the enemy may make, shall cause him to remaine safe, and thou canst not hurt him, so that being driven to stand a lost on the toppe of the wall or in what soeuer other manner on high. Thou drawest after thee two difficulties. The first is that thou canst not bring vp so great and mightie peeces of Artillerie, as hee without may shote, being not able in litle spaces to handle great thinges. The other

other is, that although thou couldest bring them, thou canst not make such strong and sure defence for to save the saide artillerie from dismounting, as they without may doe, being on the ground, and having that commoditie & that roome, that they themselves list. So that it is impossible for him that defendeth a towne, to keepe the artillerie on high places, when they which are without haue great ordinaunce enough. And if they be driven to come with them on low places, they become for the most part unprofitable, as hath bene sayd. So that the defence of the citie, is brought to bee defended with armies, as in olde time they did, and with small artillerie. Of which if there be gotten a littell profite) having respecte to the same small artillerie) there is gotten so much incommoditie, as counterpeaseth the commoditie of the artillerie: for as much as having respect to the same, they make the walles of Townes low, and as it were under ground in ditches, so that so soon as they come to the battaile at hand, either because the walles are battered, or because the ditches are filled up, he that is within, hath much more disadvantage, then he should haue had in times past. And therefore (as afoze is saide) these instruments helpeth much more him that besiegeth a towne, then he that is besieged. Concerning the third thing, to lye in a Campe within a treach, to the intent not to fight the fielde but at thy comoditie, or aduantage, I saye, that in this part thou hast no more remedy ordenarily to defend thee from fighting, then they had in olde time.

And sometimes, considering the artillerie, thou hast greater disadvantage: for that if the enemy meete with thee, and haue a littell aduantage of the countrey, as may easily chaunce, and finde him selfe higher then thou, or that in his coming thou hast not yet made thy banckes or rampiers, and couered thee well with those, straight way, and before thou hast any remedie

A discourse

die, he vnlodgeth thee, and thou arte constrained to issue out of thy fortreffe, and come to fight: the which happened to the Spaniardes in the battaile of Rauenna, who being fortified betwene the riuer of Ronco, and a bancke, because they lay, not so high as sufficed, and soz that the Frenchmen had a little the aduantage of the ground, they were constrained of the artillery to issue out of their fortreffe, and come to fight. But admit that the place, which thou hast taken with the campe, were much higher, then the other against it (as soz the most part it ought to be) and that the bankes or rampires were good and sure, so that by meanes of the situation, and thy other preparations the enemy durst not assault thee, it shall come in this case to those manners, which in olde time it came, whē one was with his army in place not possible to be hurt: the which are to ouer run the countrie, to take, or besiege the townes that are thy friendes, to stoppe thee thy victualls, so that thou shalt be constrained of some necessitie to vn lodge, and come to fight the field, where the artillerie (as hereafter shall be saide) doth not much hurt.

Considering then what kinde of warres the Romanes made, and seeing how they made almost all their warre to invade other men, and not soz to defend themselves, it shall be seene (when the thinges saide afoze be trew) how they would haue had more aduantage, & much sooner should haue made their conquestes, if ordinaunce had ben in those daies

Concerning the second thing, that men cannot shew their strength, as they might in olde time, because of the artillery, I say, that it is true, that where menne scattered doe shew it, they stande in more perill, then in those dayes, when they had to shake a towne, or to make like assaults, where men not thronged together, but seuerally the one from the other did appeare.

It is also true that the Captaines, and headdes of armies

armies, stand more subiect to the perill of death: then in those times, because they may be reached with artillerie in all places, noz it helpeth not them to be in the rerewarde, garded with most strong men. Notwithstanding it is seene, that the one and the other of these two perills, doe seldome time extraordinarie hurtes, for that the Townes well appointed and furnished with munition are not scaled, noz they goe not with weake assaults to assault them: but minding to winne them, the matter is brought to a siege, as in olde time they did. And in those, which neuerthelesse are won, by assalte, the perills are not much greater then they were in those daies: for that also in those times, they which defended a towne, lacked not thinges to throw and shote, the which (though they were not so furius) they did concerning the killing of men the like effect. Concerning the death of Captaines and conducters, there hath bene in xiiii. yerres that the warre was of late dayes in Italy, lesse examles, then there was in tenne yerres with the antiquitie: for that except Count Lodowike of Mirandola, who died at Ferrare, when the Venecians, a few yerres ago, assalted the same state, and the Duke of Acmonas, which died at Cirignuola, there hath not hapned of the artillerie any to be slaine: for as much as Mousier de Fois at Rauenna, died of yron, & not of fire. So that if men shew not perticularly their strengths, it groweth not of the artillerie, but of the naughtie orders, and of the weaknes of the armies, the which altogether lacking strength, cannot shew it in parte. Concerning the third thing sayde of them, that men cannot come to hand strokes, and that the warre shalbe brought to stand altogether vpon artillerie, I say, that this opinion is altogether false, and so alwaies shalbe taken of those, who according to the auncient vertue will occupie their armies, for that he that wil make a good armie, it behooveth him with exercises, cyther fained, or true, to accustome

of Muynes.

some his men to giue the charge on the enemy, and to come to the swordes pointe with him, and to the graspinge by the bosom: and he ought to ground him selfe more vpon the footemen, then vpon the horsemen. And when he shall ground himselfe vpon the footemen, and vpon the foresaide maners, the artillerie becommeth altogether vnprofitable. For that with more facility, the footemen in approaching nearer the enemy, may auoid the shot of the artillerie, then they were able in olde time to auoide y violence of Elisants, of cartes full of hekes & of other straunge incounters, which the Romane footemen incountered withall, against which, alwaies they found the remedie, and so much more easelie they should haue found against this, the shorter that the time is, in the which the artillery may hurt thee, then the same was, in the which the Elisants & the cartes were able to hurt: for as much as they in the middelt of the fight, disordering men, these onely before the fight doe trouble men: the which impediment the footemen easelie auoide, either with going couered by the nature of the situation, or with falling downe vpon the ground, when they shot: the which also by experience hath ben seene not to be needefull, in especially to be defended fro great ordinaunce, the which cannot in such wise be leuelled because if they grow high, they touch thee not, and if they grow low, they will not come nere thee. When the armies beeing come to hand strokes, this is more cleare, then the light, that neither the greate, nor the little can after hurt thee: for that if the same, which hath the artillerie, be before, it becommeth thy prisoner, if it behind, it hurteth thy friend before thee. Againe on the backe it cannot hurt thee after such sorte, that thou art not able to go to winne it, and it commeth to follow the said effect. For this neede not much disputation: for that there hath bene seene the example of the Swizers, who at Pauara in the yere of our Lord. 1513. without artillerie,

artillerie, and without horse, went to incounter the French armie furnished with artillerie within their fortresse, & they ouerthrew them without hauing any impediment thereby: and the reason is (besides the things told afore) that the artillerie minding to haue it worke, hath neede to bee garded either of a wall, or of ditches, or of banckes. And when it lacketh one of these gardes, it is taken, or becommeth vnprofitable as it happeneth when it is defended with men, for when they chaunce to be in a battaile, and in the fight on the land, they can not be occupied by flanke, but in the same maner, that the antiquitie occupied the instrumentes to shoot, which they placed out of the squadrons, so that they should fight out of the orders, and alwaies wheither of horsemen, or of other they were charged vpon, their refuge was behinde the legions: he that otherwise maketh accompt of them, hath no skill, & trusteth vpon a thing which easily may deceiue him. And though the Turke by meanes of artillerie, against the Sophi and the Soldā, hath had victorie, it hath not happened through other meanes, then through the feare that the horsemen were put in by the straunge rumour thereof. Therefore to make an end of this discourse, I conclude, that the artillerie is profitable in an armie, when the ancient vertue is mingled therewith, but

without the same against a puissant

armie, it is most

vnprofitable.

¶

¶

of Muynes.

¶ Of Muynes and placing of powder vnder ground, wherewith inuincible fortresses, by fire may be ruinated, when ordinance cannot be brought vnto them.

Cap. xxviii.



The better and greater quantitie of powder which is put in a caue that is made to ouerthrow a Fort or Castell, the greater vndoubtedlie shall bee the effect thereof: which caue is best to be made a good way within the ground, and in a hard place, to the intent that when the same is shut & wel walled vp, the fire be not able easily to haue any other way out, then in ouerthrowing the thing that is to be ruined, so as much as if the aire, & the fire in the roome of that inclosed place, may haue meanes to breath out, the force thereof will be of no effect. Also it would be taken heed of, that the caue be not by no other meanes marred, so that the fire may breake out, for which cause, it ought to be made, with the beginning thereof somewhat distant from the place, y^e you minde to overthrow: to the intent that in making thereof, the men of the same place doe not issue put to let you, nor perceiue the certaine place of the hurt, to be able to provide for it, & to make countermines, to let y^e fire breathe out and passe without any effect, whereby all your cost & labour may become vaine. Moreover they make these muynes the most narrowest and most crookedst that may bee, and in especially nere the very place that is appointed to be overthrown, and therefore vnder such a place there must be digged a hole that may bee at least three

three yardes high or more, and two yardes broad, and that the entrie vnto it bee vnder ground in the manner, as by this present figure you may see described.




And in this to put barreles with their heads knocked out full of good strong powder, betwene which you must also straw powder, inough vpon the borders whereon they stand, laying to it a good great match made of cotton, boyled in vineger, brimstone, and salt peter, which must bee well roled in good serpentine powder well dyed in the sunne: and hauing laied it to the place you must make a traine of powder vpon it, euen to the going out, so that it may be couered therewith: placing it in pipes of earth or tronkes of wood in the place of the entrie thereof: and that done, you must wall it by most strongly, laying ouerthwart great blocks of okes or other wood: so that with those & with the wall, it may be strong to resist the furie of the fire, as much as is possible: and the entrie in such maner made, by & fortified, when you shall thinke it time to bring the
K. III.
effect

of fireworkes.

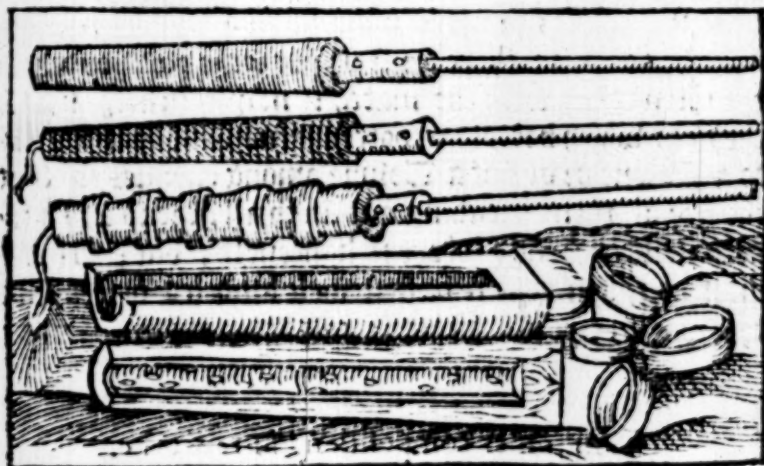
effect to passe, to destroy the aduersaries, or to make a ruine, you may cause the traine to be set on fire, where you shall see a miruailous and horrible effect follow. More about this matter I need not to declare, causing that if it should chauce the mayne to be made in a stonie place, where the stones will fall downe, that then the best is to vnderproppre them with pipes of wood filled full of powder.

¶ The maner how to make trombes or trunckes of fire, as well to assault as to defend a breach, or gate, & to set a fire a towne or Campe or any thing else.

Cap. xxix.

 First cause a cane of good wood to be made at the corners as big as a mans thigh and the length of an ell, after such sort that the hole thereof bee as wide that a man may thrust in his naked arme, and cause that the bottem of the said truncke be made in such sorte with a litle hole, & the staffe of a Partesain may enter into it, and so to be made fast therunto, binding the said truncke with yron wyre at both endes, and in the middell for more suretie that it breake not, through purie of the fire. Then fill it with this mixture here following Take serpentine powder 4. pound, rosen 1. pound, caphere half a pound, beaten glas 4. ounces, & mingle euery thing together, then begin to fill & put in the truncke a handfull of serpentine powder vnmixt, next a handfull of the foresaid mixture, after a litle powder, then a stoppell of cotten wet in oyle of gi-neper, and put in vpon the said cotton as you haue done at the first, that is to say powder, and then mixture.

care it. And thus you must do till you haue filled it full,
stamping in the stufte alwaies lightly, and if for lacke
of gineper oyle you wet the cotten in aqua vita, it is ve-
ry good putting after euerie quantitie of powder a little
quick silver, then when it is full, put in y^e mouth some good
powder, making it a single cover of parchment bound a-
bout with packthread, and with a little hole in the mid-
dest of the parchment, wherein you must put a match
made with gunpowder, the which easily and quickelie
with your common match may kindle the fyre, being
come to the face of the enimie: which is an excellent
thing for the fight on the sea, or for to disorder a band
of hoysmen.



¶ How to make bottels or pottes of fyre worke
to throw into shippes or among men
that are in battelray.

Cap. xxx.

of fireworkes.



With earthen bottels or pottes as is commonly vsed to keepe vineger or oyle and such like is best for this purpose, which must be filled with this composition: serpentine poudre two partes, rosen one part, pitch one part, beating most finely all these things together in a mortar, the take turpentine, & a little gineper oyle, or linsæde oyle, & mingle the therewith in a caudyon vpon the fire with a sticke of a yarde long, and fill the bottels halfe full of this foresaide receipt, that done, take serpentine poudre one part, rosen one part, brimstone halfe a part, pitch halfe a part, and of this last mixture the bottels or potts must be filled vp: then in the mouthes of them there must be put some good poudre, to the intent that with the match it may quickly kindle the fire: which bottels or pottes serue well to throw into a Towne or out of a Towne among enemies, so that the fire of them breaking out lieth all abroad and burneth most horribly where it lighteneth, but good hærde must be taken that it be first well kindled befoze it be throwne, in especially if it be cast from aboue.

¶ An other composition of fire worke. Cap. xxix.



Ause as many earthe bottels or pottes to be made as you list to haue, which must be as it wer but halfe backed, then fill them with this mixture following, serpentine poudre three partes, Saltpetre one parte, turpentine halfe a part, pitch halfe a parte, brimstone one part, baye Salte halfe a part, and when you will throwe them, set them

of fireworkes.

41

on fire and see that they be well kindled.

¶ Balles of mettell to throw among men in battelray or otherwise, which breaking shall do wonderfull hurte. Cap. xxxii.



Disorder and to make the enemies to give place, there may also be provided, certaine hollow balles of mettell as bigge as smal boules, and a quarter of an inch thicke, cast in mouldes and made of thre partes of brasle and one of tinne: but the brasle ought to be molte before the tinne be put to it, which balles filled halfe ful of fine corne powder, & the other halfe ful, of serpentine powder mingled with rosen beaten into powder, so that for thre partes of serpentine powder there be one part of rosen, and then putting in the mouthes of the holes of them a little fine corne powder to make the rest to fire the sooner & after being fired & thowen, they will breake and flye into a thousand peeces, and both hurt and kill whom so euer is nere or about them. Therefore they are very good to throw over the walls into a towne or fortreffe, or into a campe, to hurt and to give a terrour to those that are within: but these balles after they are fired and well kindled, and having blown a little, must be quickly thowen, least they hurt such as would hurle them: and therefore the experience of one, ought first to be made in a close place, to see how long it will tary before it breake, and the holes that it will make in diuers places, whereby the other may the better be knownen how to be used.

of fireworkes

¶ The maner how to prepare pottes
and balles of fyreworke to
throw with hand.

Cap. xxxiii.



Where the world there hath bene alwaies men of such pregaunt wittes, that haue excelled in manye and infinite inuentions, as well for the sauegarde of humane bodies as also for the destruction of the like. By whose helpe there haue bene Captaines, which consulting their counsellis haue caused their footemen to carrie in their handes, certaine earthen pottes and balles, filled full of a certaine composition of powder, or some vnicus liquor, apte to take fire quickly: with the which incountring the enemies in battaile at hand, haue victoriously whorled those among them, so to proue, whether with such meanes they might be able not onely to disorder them, but also to make them giue place, and to ouerthrow them: for as much as such fyreworkes will maruaylously hurt the enemies not onely with the smoke of them, but also a great deale and much more with the horrible and vnquenchable burning of them, so that thereby such men haue alwaies had most happye successe, with most glorious laude and praise. These fireworkes are made in this wise: Take as many earthen pottes or bottelles as you list, caused to be made for this purpose, either baked or unbaked which maketh no matter, so that the moistnesse of the earth be dried vp: and these must be filled halfe full of serpentine powder, and somewhat more: and the same powder must be mingled with pitch and brimstone beaten to powder to the quantitie of the third part thereof:

of: then there must be put vpon it a finger thickeſſe of hogges greaſe, to the intent that it may make the fire to dure the longer, and it being in this maner ordered, there muſt be made a hole into it & a peece of gunpowder match put therein, with a litle good powder, and firing it, and holding it ſo long till it be well kendeled, you ſhall then throw it. Alſo there is made a liquide compoſition in a cauldron, wherein is put hoggs greaſe, oile of ſtones, byrniſtone, ſalt peter twice refined, aqua vita, pitch, turpentine, and ſome ſerpentine powder: & the Pitch, the Byrniſtone, and the Saltpeter being liquide, putting thereto the greaſe, the turpentine, the oile and the powder ouer the fire, all muſt be ſtirred and mingled together very well in an earthen pot, or ſome other thing prepared for the ſame purpoſe with a ſticke, to the intent that it may the better incorporate: and then it muſt be couered about with good powder, that it may fire the eaſilier when you will haue it. And that done, you may deſcrip it when you wil, and whole it either with a ſling, or with a corde tied vnto it, or otherwiſe with the hand as you ſhall thinke beſt: alſo of this compoſition there may be filled certaine litle purſes of linnen cloth, which being bound about with a corde will be ſhioned like a ball; and theſe may be whorled or ſhotte out of ſtrumkes of fire, or otherwiſe as ſhall pleaſe him that maketh them. Alſo with this compoſition may be annointed whatſoeuer a mā would haue quickly burnt, as gates of Townes, byldges of wood, carres, monuments, and ſuch like, for that it is a matter that will ſone kende and ſet a fire any thing, and alſo able to maintaine it: moreover litle balles therefore may be tied to the heads of darts

to throw among the enemies, or where one would haue any thing fired.

of fireworkes.



¶ How to make balles of wild fire , to shoote in ordi-
naunce or to throw with handes.

Cap. xxxiiii.



Take serpentine powder five partes, salt
peter refined three partes, byrnsstone
two partes, Malapina one part, Cam-
phere halfe a part, turpentine halfe a
part halfe a part of glasse grossly bea-
ten, bay Salt halfe a part, halfe a part
of oile of stones, and oile of lintseede, as much of the
one as of the other, Aqua viræ halfe a part, and all these
thinges being mingled together verie well, take then a
peece of canuas as bigge as you will make the ball, and
make it like unto a purse, and fill it with the said
mixture, and then make two or three holes therein
with a round Iron somewhat bigger then a bod-
kin,

hookin, and put in euery hole a little sticke.

And it is to be vnderstood, that this foresaid mixture may be also made vpon the fire in a cauldron, and the balles that are made thereof must be rolled in serpentine powder, and then in the mixture, oftentimes consering them with Toe, well plaistered on, of a good thickness, then when they shall be a little dried, take the said sticke out of the holes and fill them halfe full of serpentine powder, & the other halfe with Coine powder, & geuing fire to þe said balles, and throwing them among the enemies, they will do maruailous and wonderfull hurt. For that the said balles will burne within the water, so that falling vpon the armour of souldiers, water cannot quench them, nor any thing else, except abouidance of mire or dirt. And adding to the said mixture that is vnsof halfe a part of beaten glasse and halfe a part of bay salt, you may fill a trumbe therewith after the maner as I haue taught a little afoze.

¶ To trimme Targettes with fireworke to assault, or to defende a breach,

Cap. xxxv.



¶ Et pipes of brasse as many as you list, & naile them vpon a target, either 6. 8. or 10. and fill the said pipes full of the foresaid mixture vnsof, & order the pipes after such sort that the fire not altogether, but one after an other, so that when one is almost burned out, the same may geue fire to another by a litle pipe as small as ones finger, that must go from the bottom therof to the mouth of another, & so successively to all, which shall continue a long time,

L. iii.

but

of lutum sapientia.

time, but the said target must be covered with blacke buckeram that the fireworke bee not perceiued, and the giuing of fire the one to the other.

¶ To make an other kind of fireworke.

Cap xxxvi.



Take willow coles, salt peter, aqua vitæ, brimstone, pitch, resapina, Camphere, oile of stones, verniceliquide, turpentine as much of the one as the other, mingling euery thing together, & then take a litle purse of canuas, and fill it full of Serpentine powder, and couer the purse all ouer with the foresaid nurture of a good thickness, and with as much Doe as you shall thinke good, and then make a hole that may goe to the middest of the balles, which must be filled full of powder, so that thereby all the composition therco. with a match may be set on fire when you list.

¶ How to make a mixture in stone that shall kindle fire with water or spittell.

Cap xxxvii.



This stone is verie necessarie for a Captaine to giue fire to his gunners, when through foule weather, all their matches should happen to goe out, and where they can not kindle them againe, because of the raine. First take vnslaked lime one part, Tutia alexandrina vnprepared one part, Salt peter verie well refined one part, quicke brimstone 2. partes, Camphere 2. partes, Calamite stone one part; All these thinges must bee well beaten and sifted, and bound hard together with a peece of new linnen cloth, & put into a cople of earthen cuppes, such as Goldsmithes vse to melt in, the mouthes

mouthes of which must bee ioynd together and fast bound with yron wyre , and daubed ouer with Lutum sapientia that it breath not out, and then dried a little, till it become yelow, that done , put it into a forners where they burne bricke or earthen vessels, and let it tary therein as long as the bricke or earthen vessels be a baking, and then taking it out , you shall see it made like vnto a bricke stone.

¶ To make an other kind of stone to kindle fire with water or spittell.

Cap. xxxviii.



Take Camphere thre partes , Saltepeter well refined two partes, vnslaked lime two partes, brimstone two partes, al these things being wel beaten together, & put into a couple of golde smithes melting cuppes, well stopped with Lutum sapientia) must then be baked in a forneis, and when the earthen vessels bee taken out, this shall also bee made.

¶ How to make lutum sapientia.

Cap. xxxix.



Take of the best white potters earth that you can gette , for in one place there is better then in an other , that is to say, of that which can best endure the fire, as such as they make pottes of in Padua, and likewise in Germany : for it is of such perfectiō, & the Pottes, which be made of it, & wherein & they dresse their

of lutum sapientia.

their meate, may also serue to found metalles in. Take then of the best, and specially if it must serue for a thing that hath neede to be long vpon a great fire, otherwise, take such as you can get. There is found of it, that is of a great colour, as the common soyle is, and also there is white, that men vse in some place of Turkeny, which is like loaves of Gypsum, or plaister, and is called of the Italians Florette de Chio. Wee here in England vppon the vse thereof, may giue it what name we will. Potters vse of it in Venice, for to white the dishes, and other thinges, before they vernish or polish them.

There is also found of it that is redde, as in Apyulia, where there is great quantitie, & that they call Boale, and is the very same that some Apotaries do sell for Boale Armenicke, & the Amerians vse of it, for to paint redde the forefrontes of their houses with lime, bricke, and Vermillion, couering it afterward with oyle of line. This redde earth is the fattest, and the clammieft of all the rest, and therefore it cleaueth sonest by the fire, if it be not tempered with some other substance.

And because that all the said earthes bee to fatte, the one more then the other, therefore menne put to them some leane substance.

Now, if you take of that of ashe colour, which is most common, & the least fatty, you may compose and make it in this maner. Take of the saide earth foure partes, of clothmakers flor or shearing, one part, ashes that haue serued in a buck, or other, halfe a part, drie horse dung, or the dung of an Asse, one part. If you will make it parfiter, put to it a few stamped bricke, and sparkes of yron: let all these thinges be well stamped, and sifted, that is to say: the earthe the ashes, the horse dung, the bricke, and the sparkes of yron: than mingle all together, and make it into earth, and make a bedde thereof, vppon the which you shall cast by littell and littell, the flore, as equally as you can. This done, poure to it wa-
ter

ter, stirring wel first with a stick, and then with a pallet broad at the ende. And when all is well incorporated together as you would haue it, lay it vpon some great boorde, and beate it well, and that a good space with some great staffe or other instrument of yron, mingling and stirring it well, for the longer you beate it, the better it is. By this meane you shall haue a very good clay, for to lute or clay, and ioyne violles, flagons of glasse to still with, and bottells of gourdes for stilling, and other great thinges, as fornesses and such like. But he that will make it with more ease, let him put the earth onely, the flore, and the horse dung, with a few ashes. Some put no horse dung to it, and some no flore according to the purpose that they make it for. For to stop and close vp the mouthes of stilling glasses, or violls, to the intent they take no vent on the fire, the said clay will be very good: ineuerthelesse men put to it two partes of quicke lime, and the whites of Egges, and then it will bee surer to let nothing vent out but the glasse it selfe. All kinde of clay or earth would be kept moist, and ready dressed for him that will occupy it continually, but it must not bee kept to watery, nor yet left to drie, for then it would serue for nothing, seeing that after it is once hardened, a man can not dresse it any more to do any good withall. And when you put water to it, it is mollified by litle and litle aboue, and is as it were a sauce, but within remaineth harde, and if you put to much watter to it, you marre it utterly. Therefore, when you see that it beginneth to ware drie, fade it a new litle and a litle with water, stirring it til it bee well, and so shall you make it perfect.

¶ How to make certaine fireworke to tye at the pointes of pikes or horsemen staues.

Cap. xl.

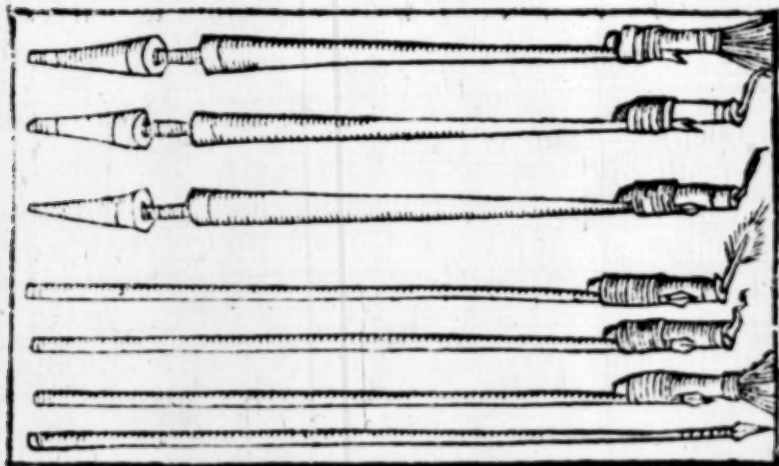
¶

For

of fireworkes.



For to assault or to defend a breach, and also to worke some policie in the night against the enemies, it is sometimes good to tye at the points of pikes or lances, certaine canes like unto squibbes made of paper vpon a forme of wood as long as the breadth of a sheete of paper, filled full of serpentine powder, amongst the which must be mingled litle peeces or crummes of pitch, of bymestone, graynes of bay salt, filings of yron, and beaten glasse, arsenic, cristall beaten to peeces, and such like, and after they are closed vp, and tied fast at one of the endes, this composition must be well beaten into them, with their owne formes or mouldes: vnto euery one of which there must be put a good match sod in Saltpeter and Gunne powder, and then well dried, and fastening them to stauces, after such sort that the issue of the fire be tourned towardes the aduersaries, when you thinke good, you or some other may fire them: where you shall then see the fire blow out two yardes long, which in the night will seeme terrible: but in a calme wether, or at least when the winde is in the faces of the enemies they are best to be vsed. And moreover for the sight of the sea, they are most excellent.



¶ How to make diuers compositions of Fireworkes.
Cap.xli.



Every thing that will quickly burne, and that by some proper vertue is apt to multiplie fire, and maintaine it, may be put in fire compositions: for that in effect of such thinges they are made: of which thinges there are some that are minerall, as brimstone, and the oile therof, & salt peter, & some other substances hot, drie, and thin, and some vniuers as grease, and all sortes of oiles: some verie drie, as pitch or woad: and of these ther be some naturall, & some artificiall. But now leauing to seeke such difference of their compositions, among as many things as wel old as new y I know, I haue found onely these, out of which I haue chosen some of the notablest, specially these, that for to make them, there must be taken Rosay, Alchitrean, quicke Brimstone, tartar, sarcocola, salt peter, and oile of Stones, and of euerie one some part, but double so much of vnslaked lime, & all must be compounded with the oile of egges, and put into a vessell of glasse or of earth that is leaded, & couered very well: putting it after vnder hot dung for a moneth, the taking it from thence and setting it ouer a soft fire, the vessel being well stopp'd, it must be melted: which done, the liqor thercof may be put into hollow stauces, or in earthen bottells, or other vessells made of purpose, vnto euery one of which, must be put a peece of a gunpowdered match, in the middell with some gunpowder also, to the intent that they may the easilier fire.

Also there may be made an other sort of fireworkes after this maner taking Brimstone, or oile of brimstone
¶.ii. Stone

of fireworkes.

Stone if it may be had , oile of Stones , or of the same stonie Oile of Juniper, Salt peter verie well refined : and for euery portion of such thinges , fine of aspalto : and moreouer goosegrease , pure pitch , vernis, powder of Pigeons dung , and so much Aqua vitæ , that may thoroughly moist all the foresaid thinges : which then must be put into a vessell of glasse, and the mouth thereof well stopped with ware , and then put vnder a hot dunghill 25. or 30. daies : and after to make it the better incorporate, it would be set ouer a soft fire : and that done , this composition may be put into hollow stauces , or earthen pottes or like vessels to be throwen with the hand : also there may be taken a bullet of stone with a ringe fastened therein , wherevnto would be tied a corde of a yard long , and about the same stone , putting Toe unbreued with the foresaid composition , or else peeces of linnen cloth all to rayed therewith , which firing , when it is well kindled may then be throwen . Also balles of this composition may be shotte in peeces of ordinaunce , or a stone that hath a ring of yron fastened in it , to the which ring may be tied a peece of a rope steepled and sod in the foresaid composition , or else a litle bag full thereof, which may be shotte or throwen as one list . Moreouer balles of this, being made with linnen cloth as aforesaid is shewed , may be cast with all sortes of slinges which way one will.

Also there is made an other composition in this maner, with vernice liquide , oile of quicke Brimstone, and oile of the yelkes of egges , turpentine oile , juniper oile , Linsede oile , and Oleum saxum , or oile of stones , and halfe as much of Aqua vitæ as all the said compositions : and also as much powder of bayes finely beaten as will suffice to thicken all , with as much more Salt peter : and all these thinges must be put together in a vessell of glasse, or some vessell of earth lea-

ded

Also there is made an other sorte : and it is a most thinne liquoz apt to fire , with the which if in the canicular daies a peece of woddē, or other thing apt to burne bē anointed , the heate of the Sunne is then able to set it on fire, and to burne it : and so sone as it is touched with fire, it kendeleth incontinent, and is vnquenchable: except it be choked vp with sand , or wet with very stale vrin , or most strong beniger : also it will burne in the water: the making, whercof is in this wise : there must bē taken Camphire, oyle of quicke Brimstone, oyle of turpentine, oyle of dunge, oyle of iuniper, oyle of stoncs , oyle of linte sedē, alchitrean, colofonia, most finely beaten, oyle of egges , pitch , gosse grease, Saltepeter, and as much aqua vita as al the rest of the composition , and as much arsenic , tartar, and armoniack salte , as the eight part of altogether. Which thing must be put into a glasse or pot well stopped , and then set to putrefie in a hotte dunghill for the space of two monethes: and after al the foresayd things

of fireworkes.

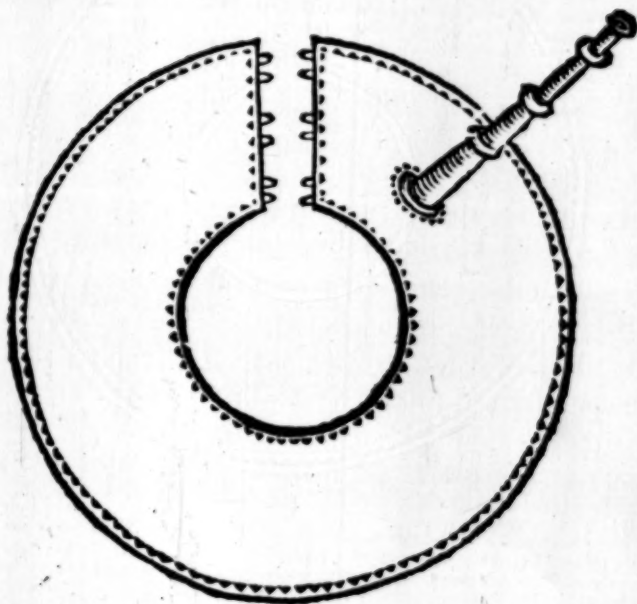
must be skillled with a gentle fire: where within 8. houres, there will come of those thinges a most subtil liquoz, into the which putting then so much ore dung dried in an oven and most finely beaten to powder, as may make it so thicke as scope o; some what thinner: and after minding to occupie it, y thing that is to be burnt, must be annointed therewith: and this also the Sunne will set on fire, and burne what soeuer is nere it.

Also there is another composition of fire, that any thing that is annointed therewith, will maruailously burne & fire with wetting of raine, or other wise: which to make, there must be taken new white lime made of flint, Calamite made to powder by fire, vitrioll grosse beaten the two and thirtieth part, Salt peter refined eight partes: and as much Camphere, as all the foresaid thinges: oile of quicke brimstone: oile of turpentine, Salt armoniacke, by waight as much as the vitrioll, and as much Tartar and bay salt: Salt of vni, Aqua vite made of strong wine as much as all the rest of the composition: the which things compounded together, must be put like as the other were, into a great glasse well stopped that it breath not out: and then it must be set in a hotte dunghill for two or three moneths, remouing the glasse, and chaunging the dung at least euerie ten daies, to the intent that the same matter may ripen well, and be like vnto a liquoz all of one thing: the which after ought to be boiled so much vpon a soft fire, that all the oylie humilitie, and other moistnesse that is in it, may vapo: away, and the rest to become drie and stonie, and when it is drie and stonie, breaking the glasse and taking it out, it must be ground to powder: the which when it is to be occupied, must be strawed vpon y place that is dressed for the same purpose, so that it being rayned vpon or any maner of wayes wette, will kindle and fall on a fire.

How

How to make a girdle for Souldiours or Fishers
whereby they may goe in the water and passe
ouer a riuer without either bridge or bote.
Cap.xlii.

This Girdle ought to be made according to the
fashion of the figure next following, and of such
lether that must be dressed in like sorte, as the
same is where with footebals are made: wher-
vnto a pipe must be fastened like vnto a baggepipe, so
that the girdle, when it is girte about a Souldiour vpon
his armour, may be blowen full of winde: by helpe
whereof, he may then safely passe ouer a riuer, going
through the same, how deepe so euer it be, where he
shall not sinke in the water, further then from the gir-
dle steele downewarde: which for men of warre, is
verie commodious and a most necessarie thing.



Of sending aduise

¶ How to write , and cause the same that is written-to
be read a farre of without sending any
message. Cap.xli.

When a Captayne were so besieged
of enemies in a Towne or for-
tresse that no man could come vnto
him, or be sent from him with
letters, whereby his munde, or the
distresse and inconuenience that
he is in, might of his friends be
vnderstand. Yet his minde being
written, may of them notwithstanding in the night be
read, as farre of as a light can then be scene, and by day,
as farre as a burning glasse can cast the sunne, or a hat
or any other such like marke may perfectly be decer-
ned, so that the order therein be first known & agreed
vpon betwene both parties. The maner in doing it in
the night, is thus : he that giueth the aduise, must hold
his letter in the one hand wherein his munde is redy
written, and one light or two lightes in the other hand,
and the other that should reade and copy the same,
ought to haue paper, and penne and inke with this a b c,
e f g . here folowing , and vnderstand.

| | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|----|----|---|---|---|---|---|---|---|---|---|----|
| a | b | c | d | e | f | g | h | i | k | l | m | n | o | p | q | r | s | t | v | w |
| this part of letters with 1. light, and this part with twoo lightes. | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

And for the plainer vnderstanding hereof, it is to be
noted that the first part of the letters are shewed with
one light, and the second part beginning at, M, are
signified with two lightes, and euerie letter of the a b c
must be vnderstand, and known by the number or
often shewing and hiding of the light or lightes : As
for example, if this worde, Man were to be written,
because

Of sending aduise

because M is the first letter standing in the second part,
M must be signified by two lightes shewed once, and
then hidde, and staied so long as may bee thought that
he that doth copie after the light so seuerally shewed,
and the number diligently marked, may haue conue-
nient time to write M: then one light being shewed
once, and so hidde and staied, a must be written: for that
a is the first lettell in the first part: and againe two
lightes being shewed twice and staied, n, ought to bee
written, because n is the second letter in the second part:
which donne, there shalbe written Man. And thus by
marking well the number of shewing, hyding and stay-
ing of the light or lightes, the letter that thereby is
signified, may most easely be vnderstand and
perceined. So that after this sorte ther
may be expressed and written what
so euer a man list.

To the Reader.



Hen the Britons the auncient inhabitants of this Ile (for lacke of skilfull men of warre of their owne, being afraied of the Franki, and Burgundi, which wer certaine Barberous nations, who at the time ouer ranne, spoiled, and possessed Frâce) caused the Germaine people called Angly to come to ayde and defend them, by whose procurement the Angly vnder Vortiger their King, taking vpon the same enterprife, after they had once defended them, did then incontinent driue them out of this Island, remaining here themselves to inhabite: and after their name called it England: euen as also of later daies, the like chaunce happened to the Greekes, by calling in the Turkes to helpe them against their enemies, Which examples, with innumerable like being well considered, do most manifestly shew, how daungerous and pernitiuſ it is for a Prince and his Realme, to be driuen to trust to the seruise of straungers, for lacke of sufficient skilfull men of their owne for their defence. Wherefore sithens my intent in setting foorth this booke of Marciall affaires, hath beene onely to the ende to declare my good will, to haue my naturall countriemen not to be inferiour to any in warlike knowledge, but rather to excell in the same, whereby without ayde or help of any forein nation: we may alwaies be most renowned and famous, I shall beseech all gentle readers, for this my labour done for their commodities, to iudge & report thereof accordingly. And although my doings herein, be not correspondent to my desire, nor to the satisfaction of euerie mans minde (which were impossible) yet my trust is, that some neuerthelesse by diligēt reading thereof, & imitating the exāple of Lucullus, (who chiefly by study of like bookes, in very shorte space, became one of the valiaatest & worthiest warior of al the Romāes) may if they list, take commoditie & profit, wherby the knowledge.

To the Reader.

ledge in warres, may of such as neuer haue bene trained in them, be the more easily gotten and attained. For which cause, my indeuour and trauaile taken herein, for to profit this our common weale, deserueth not vtterly to be despised, seeing that the most vertuous life, and gouernement of Alexander Seuerus Emperour of Rome, with many other Princes and common weales, could not being negligent in this kind of studie and practise thereof, saue or defend themselves, from most shameful ends, and miserable deathes: wherein fortune was not to bee blamed, but onely their folly and ignorance, for hauing neuer thought in time of tranquillitie and peace, that it could chaunge into aduersitie and trouble: the which is a comon fault of men not to make accompt
in faire weather, of the tempest
to come,



The table of the additions.



Perfect rule to bring men into a square battell, of what number so ever they be. Fol. 2.

To know how many men may march in a rancke, and at a suddaine to bring them into a squire square battaille, so that their Ansigne may come to in the midst. 3.

How to ordaine a number of men or an armie into a battaille, like unto a wedge, or three square, so that it may be apt to march with the point thereof toward the enemies. 6.

To make the battaille called the sheeres, which in old time they used to set against the triangle. 7.

What advantage it is to order men in a triangle battaille against the enemy, that knoweth not how to make the battaille called the sheeres to set against it, in especially where there is as many men of the one part as of the other. 8.

To bring a number of men or an armie, into a battaille, which in old time was called a Saw. 9.

To fashion a battaille of a number of men, or an armie like unto two Triangles ioyned together, so that they may be apt to march with a corner thereof toward the enemies. 10.

What is best to be done where the ordinance of the enemies being shotte into the Armie hath slaine many men. 11.

How to chaunge with speede an armie, that is, in battail ray squire square, into a triangle fashion, without disordering the first rankes, and without perill of confusion. 13.

Of the perfect forme or fashion of strong places. 16.

The strongest and perfectest fashion of all other for building of a cortin or wall of a towne or fortrese. 18.

An example of the quadrant forme to prove that it causeth

The table of the additions.

- causeth debilitie and weakenesse. 22.
- Of the nature of Salt peter, and the maner how to make and refine it. 23.
- The maner how to make all sortes of Gunpowder, fol. 27.
- The maner that is vled of charging and shooting of ordinaunce. 33.
- How to get out quickly the nailes that should haue pen by treason, or otherwise to be dyaun into the touch-holes of ordinaunce. 34.
- How much the artillerie ought to be esteemed of the armies now a daies, and whether the same opinion of them which is had vniuersallie be true. 34.
- Of Mines, and placing of Powder vnder ground, wherewith inuincible Fortresses, by fire may be ruted, when ordinaunce can not bee brought vnto them. 38.
- The maner how to make trombes or trunches of fire, as well to assault as to defende a breach or gate, and to set a fire a Towne or Campe, or any thing else. 39.
- How to make bottels or pots of fireworke to throw into shippes, or among men that are in battel ray. fol. 40.
- An other composition of fire worke. 40.
- Balles of mettell to throw among men in battel ray or otherwise, which breaking shall do wonderfull hurt. 41.
- The maner how to prepare pottes and balles of fire worke to throw with hand. 41.
- How to make balles of wilde fire, to shote in ordinaunce, or to throw with handes. 42.
- To trimme Targaettes with fireworke to assault, or to defend a breach. 43.
- To make an other kind of fireworke. 43.

The table of the additions.

How to make a mixture in stone that shal kende fire
with water or spittell. 43.

To make an other kind of stone, to kende fire wit
water or spittell. 44.

How to make lutum Sapientia. 44.

How to make certaine fireworke, to tye at the
pointes of Pikes or Horsemenstaues. 45.

How to make diuers compositions of fire workes:

How to make a girdell for Shoulldours, or Fishers,
whereby they may goe in the water and passe ouer a ri-
uer without either bridge or bote. 48.

How to write, and cause the same that is written
to be read a farre of, without sending any message.

Fol. 48.

The end.

¶ Most
BRIEFE TABLES
to knowv redily howv ma-
nie ranckes of footemen armed
with Corslettes, as vnarmed, go
to the making of a iust battaile,
from an hundred vnto twen-
tie thousand.

NEXT A VERY EASIE , AND AP-
proued way to arme a battaile with Harkabu-
zers, and winges of horsemen according
to the vse at these daies,

NEWLIE INCREASED , AND LARGELIE
amplified both in the tables, as in the declarations of the
same, by the Authour himselfe.

GIROLAMO CATANEO NOVARESE.

Tourned out of Italian into English by H.G.



¶ Imprinted at London , by
Thomas East : for Iohn Wight.
1588.

BRIEF TABLES

of the most useful and necessary

and useful of the human mind

with Considerations on the

Education of the People

in the most useful and necessary

and useful of the human mind

AND A

very useful and necessary

and useful of the human mind

AND A

very useful and necessary

and useful of the human mind

AND A

very useful and necessary

and useful of the human mind



Printed at London, by

Thomas Eggar, for J. A. Wright

1788

To the right Honorable his

singuler good Lord, the Earle

Aloigi Anogardo.



It is the common opinion of all worthie men, that among things that preferue a man still in life, warfare is that one, before the which none other is to haue place. And that because who-soeuer behaueth himselfe honorable in the exercise thereof, representeth nothing more, then the true Image of the most great and omnipotent God: Because among the most high titles attributed (according to his will) to his deuine Maiestie in the old and holie law, he hath alwayes bene content to be reuerenced and called by the name of the God of hostes. Whereupon it is come to passe, that for a good and deuine example for vs, there hath hetherto benealwaies granted and offered by the whole world vnto this most noble warfare, profession, great rewardes, high honours, and innumerable praises: Whereof such store of testimonies, are to bee seene in your most honorable and auncient house, as it is superfluous (me thinketh) to tell, how Emperours, and great Kinges haue rewarded the worthinesse and loyalty thereof with no meane degree and Signorie. The which worthinesse and loyalty, shining as it were through a certaine proprietie of lōg space in your father, and graundfathers: as the same hath at other times beene by prooffe wel knownen, and honorably rewarded, by that most prudent Senate of Venice, so are they now by worthie succession and common consent

The Epistle.

in such sort daily approoued, and praised in you, as among the faithfull and deere friends thereof you are reputed and kept for a great Captaine, a louing child, brother, and champion. VVhich is the cause that (I studying to profit with these my trauailes, such as they are, each one that is delighted with this most noble kinde of exercise) could not deuise a person in this citie, to whom (for his rare vertue, and my bounden dutie) I might better dedicate and consecrate them, then to your Lordship. And thus I shall arme them with a iust defence against those that are of a malicious minde, and like a good seruauant of yours, that in reuerensing and following you, giueth place to none, do pray you the rather to take this patronship vpon you, as in deedes of humanitie and noblenesse of minde, I know neuer a

Lord at this day, that may take this prise
from you. To whose good fauour I
doe most reuerently recommend
mee. From Brescia the
5. day of Iulie,
1563.

YOVR LORDSHIPS MOST
humble seruant *Girolamo, Catan-*
neo Nonaresse.

¶ *Girolamo Cataneo,*
to the gentle Reader.



*So to know how to determine upon
a sodaine, fitteth well to euerie one
that hath anie doinges, and that in
the handeling thereof, hath there-
by gotten great honour and commo-
ditie: so is it (according to the iudge-
ment of the wise) of greatest im-
portance to an host, that is in the
field out of araic. Because it often
happeneth, that hauing neede sometimes to fight upon small
warning, it is with a lesse number of people assaulted, put out
of order and ouerthrowen. Wherefore I haue taken vpon me,
being desirous to helpe at so great a neede, to shew brieflie
the waie how it may quicklie be brought into a maine bat-
taile, and how readilie to arme the said battaile as well with
Corsets, as hawkabusers, and horsemen. To the ende that
euerie meane witte, may vnderstand all that, which I, by the
space of thirtie yeares and more, haue obserued from wise cap-
taines, prooued by experience in person, and learned aswel by
the warres, as by the Mathematicall disciplines: Whereby
ech one may know how at neede, valiantlie to resist the
unset of the enemye, and that for the most times,
not so much by force, as
by policie.*

A.iii,



A declaration of the Columnes

of the tables following.

The first numbers placed in the first Colunne, do signifie the footmen, armed, with Coxlettes, as unarmed, or unarmed Pikes.

The second numbers, in the second Colunne, do signifie so many footmen in a rancke, as is required that the footmen of the first Colunne do goe in araic.

The third numbers in the third Colunne, do signifie so many ranches, as the footmen of the first Colunne do goe in araic.

The fourth number in the fourth Colunne, do signifie, the footmen that do excede, the araic being made.

The fift numbers in the fift Colunne, do signifie, so many maniples or partes, the raie is to be made into, so that doubling them, shoulde to shoulde, it may make a square battaile of number of people.

The sixt numbers, in the sixt Colunne, do signifie so many footmen in a rancke, as shall be set to the shoulde of the maniples, and these ranches are made of those ranches that did excede in the last of the raie, because they are not one entier maniple, and this is done so, to performe an entier battaile of number of people.

The seventh numbers, in the seventh Colunne, do signifie the number of people in length, and breadth of a battaile, that is, the first number doth signifie the people in length, and the second the people in breadth of that battaile.

The eight numbers, in the eight Colunne do signifie the footmen that do excede out of a square battaile of number of people.

The ninth numbers, in the ninth Colunne, do signifie so manie maniples, or partes, as the araic of the footmen, of the first Colunne is to be made into, so that doubling the one maniple to the other, from shoulde to shoulde, they do make a square battaile of ground.

The tenth numbers, in the tenth Colunne, do signifie

Declara. of the Columnes

so many footmen in a rancke, as is to be set to the shoulder of the maniples, and these ranckes are made of those ranckes that do exceede in the last of the raie, because those ranckes do not make an entier maniple, for to be able to performe a square battaile of ground: so these ranckes that are to be set to the shoulder of the maniples, are made of fewer men in a rancke, to the end they may make the length equal to that of y maniples, for to be able to performe the same battaile square of ground. And this battaile cometh to be two times and a third more broad then long, as expert warriors, both auncient & moderne will haue it. And this manner of battaile is square of ground, that is as long as broad.

The eleuenth numbers in the eleuenth Columnne, do signifie so many men in length and breadth as are in a square battaile of ground, that is to say, the first number is the length, and the second the breadth.

The twelue numbers, in the twelfth Columnne, do signifie the excelsse of the footmen, of a square battaile of ground.

The thirteenth numbers, in the thirteenth Columnne, do signifie so many maniples or partes as the arae ought to be made into, for to make a twofold battaile.

The fourteenth numbers, in the fourteenth Columnne, do signifie so many footmen in a rancke, as is to be set to the shoulder of the maniples, and these ranckes are made of those ranckes, that do exceede in the last of the raie, because they do not make one entier maniple to y length of the others. And these ranckes that are made, of fewer men in a rancke, to the end they may be equal in length to the maniples, to be able to ioyne shoulder with those maniples, to performe a two fold battaile, that is, that the breadth be of two times so many men as the length.

The fiftenth numbers in the fiftenth Columnne, do signifie the length and breadth of a square two folde battaile,

Declara. of the Columnes.

battaile, the first, number at the length, and the second the breadth.

The sixteenth number in the sixteenth Columnne, do signifie so many footemen as doe excede in a square two fold battaile.

We haue already spoken of a square battaile, of number of people, of ground, & two folde, next, it shalbe briefly declared, although in the beginning of this treatise, there is inough saide. A square battaile of number of people, is when there are so many men in length, as in breadth, & this battaile, the autho: vnderstandeth, not to be square of ground, according to the distaunce that men will haue in length & breadth, in their march and fight, abiding still in battaile, because being square in number of people, and those footemen hauing their due distaunce, and seuen fote in length, and three in breadth, as is aboue saide, the battaile would be two times, and a third, more long then broade of ground. So as this number of battaile cannot be called a square battaile of ground. Because a battaile square of ground, is two times and a third more broade then long of men, and this maner of battaile, hauing the due distance as is aboue saide, may be very well called a square battaile of ground, because this battaile doth take as much ground in length as in breadth. And a square two fold battaile, is two times more broad, then long, for taking away of the armed ranckes from the head & taile thereof, to arme the two flankes of y battaile, it wilbe stil y selfe same in length & breadth of men, as is y square battaile of ground, and for this cause it may also be called a square battaile of ground. And for y this sort of battaile is more in vse the y others, by reason of the vnarmed pikes, I haue therof set for thee many examples, as in this worke is to be scene. And if it seme good vnto you, to make your battailes of any other propo:cion, you shal find the whole in the ende of this worke: With other good aduertisements how to incampe.

A declaration of the squares

of a battaile.



Because it were too long a worke,
for those y are ignorant how to
make y reconing to set a battail,
of men armed w Cozlets, as vn-
armed, according to the custome
observed at these daies, I haue
found out certaine bryefe & easie
tables folowing: Wherby may
evidently be scene (the whole nu-
ber of y armed and unarmed, being once knowen) how
long & broad it ought to be, beginning from an hundred
vnto twentie thousand. For it is almost an impossible
thing, though a battaile were verie great, that it should
meunt vnto this number, for that at these dayes the
maner is not, to set a battaile of moze than of ten or
of twelue thousand men. And ye shal vnderstand further,
how it is needfull that a battaile well appointed, both
for the fight and march, that it be square of ground and
not of people: or else two fold in respect of the ranches,
that are taken from the head and taile of the battaile,
to arme the two flankes, as by our example shal be
declared. When the ground that this battaile doth oc-
cupie is square, it commeth to passe that there are not
so many men in length, as are in bredth. Of a square
battaile or number of people, and not of ground, as is
scene in the 5. 6. and 7. Columne of our tables: and
of this battaile, it is necessarie to speake a few wordes:
To wit, this battaile is square of number of people, &
not of ground, that is, there are so many men in length,
as in bredth. But throught the distaunce which is
needfull to be had, betwene footmen and footmen, from
Best to Backe, set for the march and for the fight,
it commeth to be moze long then broad of ground. Or
else

Of the square battailes:

Marbrato. else it is square of number of people, and consequent
Disaborare. of ground. As when there are so many men in length,
Straagante. as are in breadth. True it is that this kind of order is
not meet to fight, because such a square can not be found,
but that for the most times, all the pikes be at stand,
and upright. Letting you to wit, that it mought for all
that come to passe, that the pikes should fall from their
stand, and the battaile remaine in like sort square of
ground as of people. At what time it should happen for
a verie strange thing, that the battaile whilest it were
with the pikes at stand, should be assaulted on all foure
partes and being willing to bend their pikes for their
defence, in that case, some few of them abiding fast in
the Center of the battaile, and all the others round a-
bout being enlarged proportionallie, the battaile should
yet remaine square of people & of ground except the an-
gles, which should come to be opened. And this is the
reason that y^e pikes, which are at stand, are not meet to
fight, because in so being each footman hath not 7. fote
space in length, that is 3. before, and 3. behinde, and
one for his person, the which space is needfull to be ap-
pointed out, to each footman in the aforesaid battailes,
Besides that, it is also to be knowne how according to y^e
good deuision, that our auncients do make, which is both
praised & obserued by y^e wise Captains of this our time,
it is needfull for the hauing of the abovesaid squares of
a battaile, that euery footman haue in breadth, from
shoulder to shoulder, 3. fote in this sort, to wit, that ther
be 2. fote betweene one footman & another, so that euerie
one doth occupie one fote for his person, & one other that
he is to haue on each side him, which is thre in breadth
for each one of them. And although a battaile in fight
doth ware more narrow, as wel in length as in breadth,
the one setting his foot in the mid spase of the other: It
yet remaineth not for all this, but that the aboue-
said battaile is also square
of ground.

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-----|---|-----|---|---|---|----|----|----|---|----|----|----|---|----|----|
| 100 | 3 | 33 | 1 | 3 | 1 | 10 | | 5 | 1 | 6 | | 4 | 2 | 7 | |
| | 5 | 20 | 0 | 2 | 0 | | 0 | 3 | 1 | | | 2 | 4 | | 2 |
| | 7 | 14 | 2 | 1 | 3 | 10 | | 2 | 2 | 16 | + | 2 | 0 | | |
| 150 | 9 | 11 | 1 | 1 | 1 | | | 1 | 7 | | | 1 | 5 | 14 | |
| | 3 | 50 | 0 | 4 | 0 | | | 6 | 0 | 8 | | 6 | 0 | | |
| | 5 | 30 | 0 | 2 | 2 | 12 | 6 | 3 | 3 | | | 3 | 3 | 8 | |
| 200 | 7 | 21 | 3 | 1 | 5 | 12 | | 2 | 4 | 18 | 6 | 2 | 4 | | 6 |
| | 9 | 16 | 6 | 1 | 3 | | | 2 | 0 | | | 2 | 0 | 18 | |
| | 3 | 66 | 2 | 4 | 2 | | | 7 | 1 | | | 6 | 2 | | |
| 250 | 5 | 40 | 0 | 2 | 4 | 14 | 4 | 4 | 2 | 9 | | 4 | 0 | 10 | |
| | 7 | 28 | 4 | 2 | 0 | | | 3 | 1 | | 2 | 2 | 6 | | 0 |
| | 9 | 22 | 2 | 1 | 5 | 14 | | 2 | 4 | 22 | | 2 | 2 | 20 | |
| 300 | 3 | 83 | 1 | 5 | 1 | | | 8 | 1 | 10 | | 7 | 1 | | |
| | 5 | 50 | 0 | 3 | 1 | 15 | 10 | 5 | 0 | | 0 | 4 | 2 | 11 | 8 |
| | 7 | 35 | 5 | 2 | 2 | | | 3 | 4 | | | 3 | 1 | | |
| 350 | 9 | 27 | 7 | 1 | 7 | 16 | | 2 | 7 | 25 | | 2 | 4 | 22 | |
| | 3 | 100 | 0 | 5 | 2 | | | 9 | 0 | | | 8 | 1 | | |
| | 5 | 60 | 0 | 3 | 2 | 17 | | 5 | 2 | 11 | | 5 | 0 | 12 | |
| 400 | 7 | 42 | 6 | 2 | 3 | | 11 | 3 | 6 | | 3 | 3 | 4 | 25 | 0 |
| | 9 | 33 | 3 | 1 | 8 | 17 | | 3 | 0 | 27 | | 2 | 7 | | |
| | 3 | 116 | 2 | 6 | 1 | | | 9 | 2 | | | 8 | 2 | | |
| 450 | 5 | 70 | 0 | 3 | 4 | 18 | 8 | 5 | 4 | 12 | | 5 | 1 | 13 | |
| | 7 | 50 | 0 | 2 | 5 | | | 4 | 1 | | 2 | 3 | 5 | 26 | 12 |
| | 9 | 38 | 8 | 2 | 1 | 19 | | 3 | 2 | 29 | | 2 | 8 | | |
| 500 | 3 | 133 | 1 | 6 | 2 | | | 10 | 0 | | | 9 | 1 | | |
| | 5 | 80 | | 4 | 0 | 20 | | 6 | 0 | 13 | | 5 | 3 | 14 | |
| | 7 | 57 | | 2 | 6 | | 0 | 4 | 2 | | 10 | 4 | 0 | 28 | 8 |
| 550 | 9 | 44 | + | 2 | 2 | | | 3 | 3 | 30 | | 3 | 1 | | |
| | 3 | 150 | 0 | 7 | 0 | 21 | | 10 | 2 | | | 10 | 0 | 15 | |
| | 5 | 90 | | 4 | 1 | | 9 | 6 | 2 | 14 | | 6 | 0 | | |
| 600 | 7 | 64 | 2 | 2 | 9 | 21 | | 4 | 4 | | 2 | 4 | 2 | | 0 |
| | 9 | 50 | 0 | 2 | 3 | | | 3 | 5 | 32 | | 3 | 3 | 30 | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | |
|-----|---|-----|---|---|---|----|----|----|---|----|----|----|---|----|
| | 3 | 166 | 2 | 7 | I | 22 | | 11 | 2 | 14 | | 10 | I | 16 |
| 500 | 5 | 100 | 0 | 4 | 2 | | 16 | 7 | 0 | | | 6 | I | |
| | 7 | 71 | 3 | 3 | I | 22 | | 5 | 0 | 35 | 10 | 4 | 3 | 31 |
| | 9 | 55 | 5 | 2 | 4 | | | 3 | 8 | | | 3 | 4 | |
| | 3 | 183 | 1 | 7 | 2 | | | 12 | 0 | 15 | | 11 | 1 | 16 |
| 550 | 5 | 110 | 0 | 4 | 3 | 23 | 21 | 7 | I | | 10 | 4 | 4 | |
| | 7 | 78 | 4 | 3 | 2 | | | 5 | I | 36 | | 4 | 6 | |
| | 9 | 61 | 1 | 2 | 5 | 23 | — | 4 | 0 | | | 3 | 7 | 34 |
| | 3 | 200 | 0 | 8 | 1 | | | 12 | I | 16 | | 11 | 2 | |
| 600 | 5 | 120 | 0 | 5 | 0 | 24 | 0 | 7 | 2 | | 8 | 7 | 0 | 17 |
| | 7 | 85 | 5 | 3 | 4 | | | 5 | 2 | | | 5 | 0 | |
| | 9 | 66 | 6 | 2 | 7 | 25 | | 4 | I | 37 | | 3 | 8 | 35 |
| | 3 | 216 | 2 | 8 | 2 | | | 12 | 2 | 17 | | 12 | 0 | |
| 650 | 5 | 130 | 0 | 5 | I | 25 | 0 | 7 | 3 | | 4 | 7 | I | 18 |
| | 7 | 92 | 6 | 3 | 5 | | | 5 | 3 | 38 | | 5 | I | |
| | 9 | 72 | 2 | 2 | 8 | 26 | | 4 | 2 | | | 4 | 0 | 36 |
| | 3 | 233 | 1 | 8 | 2 | | | 13 | 2 | | | 12 | 2 | |
| 700 | 5 | 140 | 0 | 5 | I | 26 | | 8 | I | 17 | | 7 | 3 | 18 |
| | 7 | 100 | 0 | 3 | 5 | 26 | 24 | 5 | 6 | 41 | 3 | 5 | 3 | 38 |
| | 9 | 77 | 7 | 2 | 8 | | | 4 | 5 | | | 4 | 2 | |
| | 3 | 250 | 0 | 9 | 0 | | | 13 | 2 | 18 | | 13 | 0 | |
| 750 | 5 | 150 | 0 | 5 | 2 | 27 | 21 | 8 | I | | 12 | 7 | 4 | 19 |
| | 7 | 107 | 1 | 3 | 6 | | | 5 | 6 | 41 | | 5 | 4 | 39 |
| | 9 | 83 | 3 | 3 | 0 | 27 | | 4 | 5 | | | 4 | 3 | |
| | 3 | 266 | 2 | 9 | I | | | 14 | 2 | 18 | | 13 | I | |
| 800 | 5 | 160 | 0 | 5 | 3 | 28 | 16 | 8 | 4 | | 8 | 8 | 0 | 20 |
| | 7 | 114 | 2 | 4 | 0 | 28 | | 6 | 2 | | | 5 | 5 | 40 |
| | 9 | 88 | 8 | 3 | I | | | 4 | 8 | 44 | | 4 | 4 | |
| | 3 | 283 | I | 9 | 2 | | | 14 | 2 | 19 | | 14 | 0 | 20 |
| 850 | 5 | 170 | 0 | 5 | 4 | 29 | 9 | 8 | 4 | | | 8 | 2 | |
| | 7 | 121 | 2 | 4 | I | | | 6 | 2 | | 14 | 6 | 2 | |
| | 9 | 94 | 4 | 3 | 2 | 29 | | 4 | 6 | 44 | | 4 | 6 | 42 |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|------|----|-----|-----|------|---|----|-----|------|----|---|----|-----|------|-------|----|-----|
| 600 | 3 | 300 | 0 | 10 | 0 | | 30 | | 15 | 0 | 20 | | 14 | 0 | 21 | |
| | 5 | 180 | 0 | 6 | 0 | | | 0 | 9 | 0 | | 0 | 8 | 2 | | 18 |
| | 7 | 128 | 4 | 4 | 2 | | 30 | | 6 | 3 | 45 | | 6 | 0 | 42 | |
| 950 | 9 | 100 | 0 | 3 | 3 | | | | 5 | 0 | | | 4 | 6 | | |
| | 3 | 316 | 2 | 10 | 1 | | 30 | | 15 | 2 | 20 | | 14 | 1 | 22 | |
| | 5 | 190 | 0 | 6 | 1 | | | 20 | 9 | 2 | | 10 | 8 | 3 | | 4 |
| 1000 | 7 | 135 | 5 | 4 | 3 | | 31 | | 6 | | 47 | | 6 | 1 | 43 | |
| | 9 | 105 | 5 | 3 | 4 | | | | 5 | 2 | | | 4 | 7 | | |
| | 3 | 333 | 1 | 10 | 2 | | 31 | 8 | 16 | 2 | 20 | | 15 | 0 | 22 | |
| 1100 | 5 | 200 | 0 | 6 | 2 | | | | 10 | 0 | | 0 | 9 | 0 | | 10 |
| | 7 | 142 | 6 | 4 | 4 | | 32 | | 7 | 1 | 50 | | 6 | 3 | 45 | |
| | 9 | 111 | 1 | 3 | 5 | | | | 5 | 5 | | | 5 | 0 | | |
| 1200 | 3 | 366 | 2 | 11 | 0 | | 33 | | 16 | 2 | 22 | | 15 | 2 | 23 | |
| | 5 | 220 | 0 | 6 | 8 | | | 11 | 10 | 0 | | 0 | 9 | 2 | | 19 |
| | 7 | 157 | 1 | 4 | 5 | | 33 | | 7 | 1 | 50 | | 6 | 5 | 47 | |
| 1300 | 9 | 122 | 2 | 3 | 6 | | | | 5 | 5 | | | 5 | 2 | | |
| | 5 | 240 | 0 | 7 | 0 | | 34 | | 10 | 2 | 23 | | 9 | 3 | 25 | |
| | 7 | 171 | 3 | 5 | 0 | | | 10 | 17 | 3 | | 4 | 6 | 6 | | 0 |
| 1400 | 9 | 133 | 3 | 3 | 8 | | 35 | | 5 | 7 | 52 | | 5 | 3 | 48 | |
| | 11 | 108 | 4 | 3 | 2 | | | | 4 | 8 | | | 4 | 4 | | |
| | 5 | 260 | 0 | 3 | 1 | | 36 | 4 | 11 | 1 | 23 | | 10 | 0 | 26 | |
| 1500 | 7 | 185 | 5 | 5 | 1 | | | | 8 | 0 | | 12 | 7 | 1 | | 0 |
| | 9 | 144 | 4 | 4 | 0 | | 36 | | 6 | 2 | 56 | | 5 | 5 | 50 | |
| | 11 | 118 | 2 | 3 | 3 | | | | 5 | 1 | | | 4 | 6 | | |
| 1600 | 5 | 280 | 0 | 7 | 2 | | 37 | | 11 | 3 | 24 | | 10 | 3 | 26 | |
| | 7 | 200 | 0 | 5 | 2 | | | 31 | 8 | 2 | | 8 | 7 | 4 | | 22 |
| | 9 | 155 | 5 | 4 | 1 | | 37 | | 6 | 4 | 58 | | 5 | 8 | | |
| 1700 | 11 | 127 | 3 | 3 | 4 | | | | 5 | 3 | | | 4 | 9 | 53 | |
| | 5 | 300 | 0 | 7 | 4 | | 38 | 18 | 12 | 0 | 25 | | 11 | 0 | 27 | 15 |
| | 7 | 211 | 3 | 5 | 4 | | | | 8 | 4 | | 0 | 7 | 6 | | |
| 1800 | 9 | 166 | 6 | 4 | 3 | | 39 | | 6 | 6 | 60 | | 6 | 1 | | |
| | 11 | 126 | 4 | 3 | 6 | | | | 5 | 5 | | | 5 | 0 | 55 | |

| i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi | i |
|------|----|-----|------|---|----|-----|------|----|---|----|-----|------|-------|----|-----|----|
| 1600 | 5 | 320 | 0 | 8 | 0 | 40 | | 12 | 1 | 26 | | 11 | 2 | | 28 | |
| | 7 | 228 | 4 | 7 | 5 | | 0 | 8 | 5 | | 14 | 8 | 1 | | | |
| | 9 | 177 | 7 | 4 | 4 | 40 | | 6 | 7 | 61 | | 6 | 3 | | 57 | 4 |
| | 11 | 145 | 5 | 3 | 7 | | | 5 | 6 | | | 5 | 2 | | | |
| 1700 | 5 | 340 | 0 | 8 | 1 | 41 | | 12 | 2 | | | 11 | 3 | | 29 | |
| | 7 | 242 | 6 | 5 | 6 | | 19 | 8 | 6 | 27 | | 8 | 2 | | | |
| | 9 | 188 | 8 | 4 | 5 | 41 | | 6 | 8 | 62 | 26 | 6 | 4 | | 58 | 18 |
| | 11 | 154 | 6 | 3 | 8 | | | 5 | 7 | | | 5 | 3 | | | |
| 1800 | 5 | 360 | 0 | 8 | 2 | 42 | | 12 | 4 | 28 | | 12 | 0 | | 30 | |
| | 7 | 257 | 1 | 6 | 0 | | 36 | 9 | 1 | | 8 | 8 | 4 | | | |
| | 9 | 200 | 0 | 4 | 6 | 42 | | 7 | 1 | 64 | | 6 | 6 | | 60 | 0 |
| | 11 | 163 | 7 | 3 | 9 | | | 5 | 9 | | | 5 | 5 | | | |
| 1900 | 5 | 380 | 0 | 8 | 4 | 43 | | 13 | 2 | 28 | | 12 | 1 | | 31 | |
| | 7 | 271 | 3 | 6 | 2 | | 8 | 9 | 4 | | 24 | 8 | 5 | | | |
| | 9 | 211 | 1 | 4 | 8 | 44 | | 7 | 4 | 67 | | 6 | 3 | | 61 | 9 |
| | 11 | 172 | 8 | 4 | 0 | | | 6 | 1 | | | 5 | 6 | | | |
| 2000 | 5 | 400 | 0 | 9 | 0 | 44 | | 13 | 3 | | | 12 | 4 | | | |
| | 7 | 285 | 5 | 6 | 3 | | 20 | 9 | 5 | 29 | 28 | 9 | 1 | | 31 | 16 |
| | 9 | 222 | 2 | 5 | 0 | 45 | | 7 | 5 | 68 | | 7 | 1 | | | |
| | 11 | 181 | 9 | 4 | 1 | | | 6 | 2 | | | 5 | 9 | | 64 | |
| 2100 | 5 | 420 | 0 | 9 | 1 | 45 | | 14 | 0 | | | 13 | 0 | | | |
| | 7 | 300 | 0 | 6 | 4 | | 30 | 10 | 0 | 30 | 0 | 9 | 2 | | 32 | 20 |
| | 9 | 233 | 3 | 5 | 1 | 46 | | 7 | 7 | 70 | | 7 | 2 | | 65 | 20 |
| | 11 | 190 | 10 | 4 | 2 | | | 6 | 4 | | | 5 | 10 | | | |
| 2200 | 5 | 440 | 0 | 9 | 2 | 46 | | 14 | 3 | | | 13 | 1 | | | |
| | 7 | 314 | 2 | 6 | 5 | | 38 | 10 | 3 | 30 | 10 | 9 | 3 | | 33 | 22 |
| | 9 | 244 | 4 | 5 | 2 | 47 | | 8 | 1 | | | 7 | 3 | | 66 | |
| | 11 | 200 | 0 | 4 | 3 | | | 6 | 7 | 73 | | 6 | 0 | | | |
| 2300 | 5 | 460 | 0 | 9 | 3 | 47 | | 14 | 4 | | | 13 | 2 | | | |
| | 7 | 328 | 4 | 6 | 6 | | 44 | 10 | 4 | 31 | 6 | 9 | 4 | | 34 | 22 |
| | 9 | 255 | 5 | 5 | 3 | 48 | | 8 | 2 | 74 | | 7 | 4 | | 67 | 22 |
| | 11 | 209 | 1 | 4 | 4 | | | 6 | 8 | | | 6 | 1 | | | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-----|----|-----|---|----|----|----|----|----|---|----|----|----|---|----|----|
| | 5 | 480 | 0 | 10 | 0 | | | 15 | 0 | | | 14 | 0 | | |
| | 7 | 342 | 6 | 7 | 1 | 48 | | 10 | 5 | 32 | | 10 | 0 | 34 | 2c |
| 100 | 9 | 266 | 6 | 5 | 5 | | 0 | 8 | 3 | | 0 | 7 | 7 | | |
| | 11 | 218 | 2 | 4 | 6 | 50 | | 6 | 9 | 75 | | 6 | 4 | 70 | |
| | 5 | 500 | 0 | 10 | 0 | 50 | | 15 | 3 | 32 | | 14 | 1 | | |
| 200 | 7 | 357 | 1 | 7 | 1 | | 0 | 11 | 1 | | 4 | 10 | 1 | 35 | 15 |
| | 9 | 277 | 7 | 5 | 5 | 50 | | 8 | 6 | 78 | | 7 | 8 | 71 | |
| | 11 | 227 | 3 | 4 | 6 | | | 7 | 1 | | | 6 | 5 | | |
| | 5 | 520 | 0 | 10 | 2 | 50 | | 15 | 3 | 33 | | 14 | 2 | 36 | |
| 300 | 7 | 371 | 3 | 7 | 3 | | 0 | 11 | 1 | | 26 | 10 | 2 | | 8 |
| | 9 | 288 | 8 | 5 | 7 | 52 | | 8 | 6 | 78 | | 8 | 0 | 72 | |
| | 11 | 236 | 4 | 4 | 8 | | | 7 | 1 | | | 6 | 6 | | |
| | 5 | 504 | 0 | 10 | 2 | 51 | | 15 | 4 | 34 | | 15 | 0 | 36 | |
| 400 | 7 | 385 | 5 | 7 | 3 | | 48 | 11 | 2 | | 14 | 10 | 5 | | 0 |
| | 9 | 300 | 0 | 5 | 7 | 52 | | 8 | 7 | 79 | | 8 | 3 | 75 | |
| | 11 | 245 | 5 | 4 | 8 | | | 7 | 2 | | | 6 | 9 | | |
| | 5 | 560 | 0 | 10 | 3 | 52 | | 16 | 0 | 35 | | 15 | 6 | 37 | |
| 500 | 7 | 400 | 0 | 7 | 4 | | 44 | 11 | 3 | | 0 | 10 | 3 | | 25 |
| | 9 | 311 | 1 | 5 | 8 | 53 | | 8 | 8 | 80 | | 8 | 7 | 75 | |
| | 11 | 254 | 6 | 4 | 9 | | | 7 | 3 | | | 6 | 9 | | |
| | 5 | 380 | 0 | 10 | 4 | 53 | | 16 | 2 | 35 | | 15 | 1 | 38 | |
| 600 | 7 | 414 | 2 | 7 | 5 | | 38 | 1 | 5 | | 30 | 10 | 0 | | 12 |
| | 9 | 322 | 2 | 6 | 0 | 54 | | 9 | 1 | 82 | | 8 | 4 | 76 | |
| | 11 | 263 | 7 | 4 | 10 | | | 7 | 5 | | | 6 | 0 | | |
| | 5 | 600 | 0 | 11 | 0 | 54 | | 16 | 3 | 36 | | 15 | 7 | 38 | |
| 700 | 7 | 428 | 4 | 7 | 6 | | 30 | 11 | 6 | | 12 | 11 | 1 | | 36 |
| | 9 | 333 | 3 | 6 | 1 | 55 | | 9 | 2 | 83 | | 8 | 9 | 78 | |
| | 11 | 272 | 8 | 5 | 0 | | | 7 | 6 | | | 7 | 1 | | |
| | 5 | 620 | 0 | 11 | 1 | 55 | | 17 | 1 | 36 | | 15 | 4 | 39 | |
| 800 | 7 | 442 | 6 | 8 | 0 | | 20 | 12 | 2 | | 4 | 11 | 2 | | 15 |
| | 9 | 344 | 4 | 5 | 2 | 56 | | 9 | 5 | 86 | | 8 | 7 | 79 | |
| | 11 | 281 | 9 | 5 | 1 | | | 7 | 9 | | | 2 | 2 | | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|------|----|-----|-----|------|---|----|-----|------|----|---|----|-----|------|-------|----|-----|
| | 5 | 640 | 0 | 11 | 2 | | | | 17 | 1 | | 16 | 0 | | | |
| 3200 | 7 | 457 | 1 | 8 | 1 | 56 | | | 12 | 2 | 37 | 18 | 11 | 3 | 40 | 0 |
| | 9 | 355 | 5 | 6 | 3 | | 8 | | 9 | 5 | 86 | | 8 | 8 | 80 | |
| | 11 | 290 | 10 | 5 | 2 | 57 | | | 7 | 9 | | | 7 | 3 | | |
| 3300 | 5 | 660 | 0 | 11 | 2 | | | | 17 | 4 | 37 | | 16 | 2 | 40 | |
| | 7 | 471 | 3 | 8 | 1 | 57 | | | 12 | 5 | | 7 | 11 | 5 | | |
| | 9 | 366 | 6 | 6 | 3 | | 51 | | 9 | 8 | 89 | 7 | 9 | 1 | 82 | 10 |
| | 11 | 300 | 0 | 5 | 2 | 57 | | | 8 | 1 | | | 7 | 5 | | |
| 3400 | 5 | 680 | 0 | 1 | 3 | | | | 17 | 4 | | | 16 | 2 | 41 | |
| | 7 | 485 | 5 | 8 | 2 | 58 | | | 12 | 5 | 38 | | 11 | 5 | | |
| | 9 | 377 | 7 | 6 | 4 | 85 | 36 | | 9 | 8 | 89 | 18 | 9 | 1 | 82 | 38 |
| | 11 | 309 | 1 | 5 | 3 | | | | 8 | 1 | | | 7 | 5 | | |
| 3500 | 5 | 700 | 0 | 11 | 4 | | | | 18 | 2 | 38 | | 10 | 3 | 42 | |
| | 7 | 500 | 0 | 8 | 3 | 59 | | | 13 | 1 | | | 11 | 6 | | |
| | 9 | 388 | 8 | 6 | 5 | | 19 | | 0 | 2 | 92 | 4 | 9 | 2 | 83 | 14 |
| | 11 | 318 | 2 | 5 | 4 | 59 | | | 8 | 4 | | | 7 | 6 | | |
| 3600 | 5 | 720 | 0 | 12 | 0 | 60 | | | 18 | 2 | 39 | | 17 | 0 | 42 | |
| | 7 | 514 | 2 | 8 | 4 | | | | 13 | 1 | | | 12 | 1 | | |
| | 9 | 400 | 0 | 6 | 6 | 60 | 0 | | 10 | 2 | 92 | 12 | 9 | 4 | 85 | 30 |
| | 11 | 327 | 3 | 5 | 5 | | | | 8 | 4 | | | 7 | 8 | | |
| 3700 | 5 | 740 | 0 | 12 | 1 | 60 | | | 18 | 2 | 40 | | 17 | 1 | 43 | |
| | 7 | 528 | 4 | 8 | 5 | | | | 13 | 1 | | | 12 | 2 | | |
| | 9 | 411 | 1 | 6 | 7 | 61 | 40 | | 10 | 2 | 92 | 20 | 9 | 6 | 86 | 2 |
| | 11 | 336 | 4 | 5 | 6 | | | | 8 | 4 | | | 7 | 9 | | |
| 3800 | 5 | 760 | 0 | 12 | 2 | 61 | | | 19 | 0 | 40 | | 17 | 3 | 43 | |
| | 7 | 542 | 6 | 8 | 6 | | | | 13 | 4 | | | 12 | 4 | | |
| | 9 | 422 | 2 | 6 | 8 | 62 | 18 | | 10 | 5 | 95 | 0 | 9 | 7 | 88 | 16 |
| | 11 | 345 | 5 | 5 | 7 | | | | 8 | 7 | | | 8 | 0 | | |
| 3900 | 5 | 780 | 0 | 12 | 2 | 62 | | | 19 | 0 | 41 | | 17 | 3 | 44 | |
| | 7 | 557 | 1 | 8 | 6 | | | | 13 | 4 | | | 12 | 4 | | |
| | 9 | 433 | 3 | 6 | 8 | 62 | 56 | | 10 | 5 | 95 | 5 | 9 | 7 | 88 | 28 |
| | 11 | 354 | 6 | 5 | 7 | | | | 8 | 7 | | | 8 | 0 | | |

i ii iii iv v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|------|----|-----|----|----|----|----|----|----|---|-----|----|----|---|----|----|
| | 5 | 800 | 0 | 12 | 3 | 63 | | 19 | 2 | 41 | | 18 | 0 | 44 | |
| 4000 | 7 | 571 | 3 | 9 | 0 | | 31 | 13 | 6 | | 13 | 12 | 6 | | 40 |
| | 9 | 444 | 4 | 7 | 0 | 63 | | 10 | 7 | 97 | | 10 | 0 | 90 | |
| | 11 | 363 | 7 | 5 | 8 | | | 8 | 9 | | | 8 | 2 | | |
| 4100 | 5 | 820 | 0 | 12 | 4 | 64 | | 19 | 2 | 42 | | 18 | 1 | 45 | |
| | 7 | 585 | 5 | 9 | 1 | | 4 | 13 | 6 | | 26 | 12 | 7 | | 5 |
| | 9 | 455 | 5 | 7 | 1 | 64 | | 10 | 7 | 97 | | 10 | 1 | 91 | |
| | 11 | 372 | 8 | 5 | 9 | | | 8 | 9 | | | 8 | 3 | | |
| 4200 | 5 | 840 | 0 | 13 | 0 | 64 | | 20 | 0 | | | 18 | 1 | 46 | |
| | 7 | 600 | 0 | 9 | 2 | | | 14 | 2 | 42 | | 13 | 0 | | 14 |
| | 9 | 466 | 6 | 7 | 2 | 65 | 40 | 11 | 1 | 100 | | 10 | 1 | 91 | |
| | 11 | 381 | 9 | 5 | 10 | | | 9 | 1 | | | 8 | 3 | | |
| 4300 | 5 | 860 | 0 | 13 | 1 | 65 | | 20 | 0 | | | 18 | 3 | 46 | |
| | 7 | 614 | 2 | 9 | 3 | | 10 | 14 | 2 | 43 | | 13 | 2 | | 22 |
| | 9 | 477 | 7 | 7 | 3 | 66 | | 11 | 1 | 100 | | 10 | 3 | 93 | |
| | 11 | 390 | 10 | 6 | 0 | | | 9 | 1 | | | 8 | 5 | | |
| 4400 | 5 | 880 | 0 | 13 | 1 | 66 | | 20 | 2 | | | 18 | 3 | 47 | |
| | 7 | 628 | 4 | 9 | 3 | | 44 | 14 | 4 | 43 | | 13 | 2 | | 29 |
| | 9 | 488 | 8 | 7 | 3 | 66 | | 11 | 3 | 102 | | 10 | 3 | 93 | |
| | 11 | 400 | 0 | 6 | 0 | | | 9 | 3 | | | 8 | 5 | | |
| 4500 | 5 | 900 | 0 | 13 | 2 | 67 | | 20 | 2 | 44 | | 19 | 0 | 47 | |
| | 7 | 642 | 6 | 9 | 4 | | 11 | 14 | 4 | | 12 | 13 | 4 | | 35 |
| | 9 | 500 | 0 | 7 | 4 | 67 | | 11 | 3 | 102 | | 10 | 5 | 95 | |
| | 11 | 409 | 1 | 6 | 1 | | | 9 | 3 | | | 8 | 7 | | |
| 4600 | 5 | 920 | 0 | 13 | 3 | 67 | | 20 | 4 | | | 19 | 0 | 48 | |
| | 7 | 657 | 1 | 9 | 5 | | 44 | 14 | 6 | 44 | | 13 | 4 | | 40 |
| | 9 | 511 | 1 | 7 | 5 | 68 | 44 | 11 | 5 | 104 | | 10 | 5 | 95 | |
| | 11 | 418 | 2 | 6 | 2 | | | 9 | 5 | | | 8 | 7 | | |
| 4700 | 5 | 940 | 0 | 13 | 4 | 68 | | 20 | 4 | 45 | | 19 | 2 | 48 | |
| | 7 | 671 | 3 | 9 | 6 | | 8 | 14 | 6 | | | 13 | 6 | | 44 |
| | 9 | 522 | 2 | 7 | 6 | 69 | | 11 | 5 | 104 | | 10 | 7 | 97 | |
| | 11 | 427 | 3 | 6 | 13 | | | 9 | 5 | | | 8 | 9 | | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv |
|------|----|------|-----|------|---|----|-----|------|----|-----|----|-----|------|-------|----|
| 4800 | 5 | 960 | 0 | 13 | 4 | 69 | | 21 | 1 | 45 | | 19 | 2 | 49 | |
| | 7 | 685 | 5 | 9 | 5 | | 39 | 15 | 1 | | 30 | 13 | 6 | | |
| | 9 | 533 | 3 | 7 | 6 | 69 | | 11 | 7 | 106 | | 10 | 7 | 97 | |
| 4900 | 11 | 436 | 4 | 6 | 3 | | | 9 | 7 | | | 8 | 9 | | |
| | 5 | 980 | 0 | 14 | 0 | 70 | | 21 | 1 | 46 | | 19 | 3 | 50 | |
| | 7 | 700 | 0 | 10 | 0 | | 0 | 15 | 1 | | 24 | 14 | 0 | | |
| 5000 | 9 | 544 | 4 | 7 | 7 | 70 | | 11 | 7 | 106 | | 10 | 8 | 98 | |
| | 11 | 445 | 5 | 6 | 4 | | | 9 | 7 | | | 8 | 10 | | |
| | 5 | 1000 | 0 | 14 | 1 | 70 | | 21 | 3 | 46 | | 20 | 0 | 50 | |
| 5100 | 7 | 714 | 2 | 10 | 1 | | 30 | 15 | 3 | | 32 | 14 | 2 | | |
| | 9 | 555 | 5 | 7 | 8 | 71 | | 12 | 0 | 108 | | 11 | 1 | 100 | |
| | 11 | 454 | 6 | 6 | 5 | | | 9 | 9 | | | 9 | 1 | | |
| 5200 | 5 | 1020 | 0 | 14 | 1 | 71 | | 22 | 0 | 46 | | 20 | 0 | 51 | |
| | 7 | 728 | 4 | 10 | 1 | | 59 | 15 | 5 | | 40 | 14 | 2 | | |
| | 9 | 566 | 6 | 7 | 8 | 71 | | 12 | 2 | 110 | | 11 | 1 | 100 | |
| 5300 | 11 | 463 | 7 | 6 | 5 | | | 10 | 0 | | | 9 | 1 | | |
| | 5 | 1040 | 0 | 14 | 2 | 72 | | 22 | 0 | 47 | | 20 | 1 | 51 | |
| | 7 | 742 | 6 | 10 | 2 | | 16 | 15 | 5 | | 30 | 14 | 3 | | |
| 5400 | 9 | 577 | 7 | 8 | 0 | 72 | | 12 | 2 | 110 | | 11 | 2 | 01 | |
| | 11 | 472 | 8 | 6 | 6 | | | 10 | 0 | | | 9 | 2 | | |
| | 5 | 1060 | 0 | 14 | 3 | 72 | | 22 | 2 | 47 | | 20 | 3 | 51 | |
| 5500 | 7 | 757 | 1 | 10 | 3 | | 44 | 16 | 0 | | 56 | 14 | 5 | | |
| | 9 | 588 | 8 | 8 | 1 | 73 | | 12 | 4 | 112 | | 11 | 4 | 03 | |
| | 11 | 481 | 9 | 6 | 7 | | | 10 | 2 | | | 9 | 4 | | |
| 5600 | 5 | 1080 | 0 | 14 | 3 | 73 | | 22 | 2 | 48 | | 20 | 3 | 52 | |
| | 7 | 771 | 3 | 10 | 3 | | 71 | 16 | 0 | | 4 | 14 | 5 | | |
| | 9 | 600 | 0 | 8 | 1 | 73 | | 12 | 4 | 112 | | 11 | 1 | 103 | |
| 5700 | 11 | 490 | 10 | 6 | 7 | | | 10 | 2 | | | 9 | 4 | | |
| | 5 | 1100 | 0 | 14 | 4 | 74 | | 22 | 4 | 48 | | 21 | 0 | 52 | |
| | 7 | 785 | 5 | 10 | 4 | | 24 | 16 | 2 | | 28 | 1 | | | |
| 5800 | 9 | 611 | 1 | 8 | 2 | 74 | | 12 | 6 | 114 | | 12 | 6 | 105 | |
| | 11 | 500 | 0 | 6 | 8 | | | 10 | 4 | | | 0 | 6 | | |

i ii iii iv v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|------|----|------|---|----|----|----|----|----|----|-----|----|----|----|-----|----|
| | 5 | 1120 | 0 | 15 | 0 | 74 | | 22 | 4 | 49 | | 21 | 0 | 53 | |
| 5600 | 7 | 800 | 0 | 10 | 5 | | 50 | 16 | 2 | | 14 | 15 | 0 | | 35 |
| | 9 | 622 | 2 | 8 | 3 | 75 | | 12 | 6 | 114 | | 11 | 6 | 105 | |
| | 11 | 509 | 1 | 6 | 9 | | | 10 | 4 | | | 9 | 6 | | |
| | 5 | 1140 | 0 | 15 | 1 | 75 | | 23 | 1 | | | 21 | 2 | | |
| 5700 | 7 | 814 | 2 | 10 | 6 | | 0 | 16 | 4 | 49 | 16 | 15 | 2 | 53 | 25 |
| | 9 | 633 | 3 | 8 | 4 | 76 | | 12 | 8 | 116 | | 11 | 8 | | |
| | 11 | 518 | 2 | 6 | 10 | | | 10 | 6 | | | 9 | 8 | 107 | |
| | 5 | 1160 | 0 | 15 | 1 | 76 | | 23 | 1 | | | 21 | 2 | | |
| 5800 | 7 | 828 | 4 | 10 | 6 | | 24 | 15 | 4 | 50 | 0 | 15 | 2 | 54 | 22 |
| | 9 | 644 | 4 | 8 | 4 | 76 | | 12 | 8 | 116 | | 11 | 8 | 107 | |
| | 11 | 527 | 3 | 6 | 10 | | | 10 | 6 | | | 9 | 8 | | |
| | 5 | 1180 | 0 | 15 | 21 | 76 | | 23 | 3 | | | 21 | 4 | | |
| 5900 | 7 | 842 | 6 | 11 | 0 | | 48 | 16 | 6 | 50 | 0 | 15 | 4 | 54 | 14 |
| | 9 | 655 | 5 | 8 | 5 | 77 | | 13 | 1 | | | 12 | 1 | | |
| | 11 | 536 | 4 | 7 | 0 | | | 10 | 8 | 118 | | 9 | 10 | 109 | |
| | 5 | 1200 | 0 | 15 | 2 | 77 | | 24 | 0 | | | 21 | 4 | | |
| 6000 | 7 | 857 | 1 | 11 | 0 | | 71 | 17 | 1 | 50 | 0 | 15 | 4 | 55 | 5 |
| | 9 | 665 | 6 | 8 | 5 | 77 | | 13 | 3 | 120 | | 12 | 1 | | |
| | 11 | 545 | 5 | 7 | 0 | | | 10 | 10 | | | 9 | 10 | 109 | |
| | 5 | 1220 | 0 | 15 | 3 | 78 | | 23 | 4 | | | 22 | 0 | | |
| 6100 | 7 | 871 | 3 | 11 | 1 | | 16 | 17 | 0 | 51 | 31 | 15 | 5 | 55 | |
| | 9 | 677 | 7 | 8 | 6 | 78 | | 13 | 2 | | | 12 | 2 | | 50 |
| | 11 | 554 | 6 | 7 | 1 | | | 10 | 9 | 119 | | 10 | 6 | 110 | |
| | 5 | 1240 | 0 | 15 | 4 | 78 | | 24 | 4 | | | 22 | 2 | | |
| 6200 | 7 | 885 | 5 | 11 | 4 | | 38 | 17 | 2 | 51 | 29 | 16 | 0 | 55 | 40 |
| | 9 | 683 | 8 | 8 | 7 | 79 | | 13 | 4 | | | 12 | 4 | | |
| | 11 | 563 | 7 | 7 | 2 | | | 11 | 0 | 121 | | 10 | 2 | 112 | |
| | 5 | 1260 | 0 | 15 | 4 | 79 | | 24 | 1 | | | 22 | 2 | | |
| 6300 | 7 | 900 | 0 | 11 | 2 | | 59 | 17 | 2 | 52 | 8 | 16 | 0 | 56 | 28 |
| | 9 | 700 | 9 | 8 | 7 | 79 | | 3 | 4 | | | 12 | 4 | | |
| | 11 | 572 | 8 | 7 | 2 | | | 11 | 0 | 121 | | 10 | 2 | 112 | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|------|----|------|-----|------|---|----|-----|------|----|---|-----|-----|------|-------|-----|-----|
| 6400 | 5 | 1280 | 0 | 16 | 0 | | 80 | | 24 | 3 | 52 | | 22 | 4 | 56 | |
| | 7 | 914 | 2 | 11 | 3 | | 80 | 0 | 17 | 4 | | + | 16 | 2 | | |
| | 9 | 711 | 1 | 8 | 8 | | 80 | | 13 | 6 | 123 | | 12 | 6 | 114 | |
| | 11 | 581 | 9 | 7 | 3 | | | | 11 | 2 | | | 10 | 4 | | |
| 6500 | 5 | 1300 | 0 | 16 | 1 | | 80 | | 25 | 0 | 52 | | 22 | 4 | | |
| | 7 | 928 | 4 | 11 | 4 | | 80 | 20 | 17 | 6 | | 0 | 16 | 2 | 57 | |
| | 9 | 722 | 2 | 9 | 0 | | | | 13 | 8 | 125 | | 12 | 6 | | |
| | 11 | 590 | 10 | 7 | 4 | | 81 | | 11 | 4 | | | 10 | 4 | 114 | |
| 6600 | 5 | 1320 | 0 | 16 | 1 | | 81 | | 24 | 4 | 53 | | 23 | 0 | | |
| | 7 | 942 | 6 | 11 | 4 | | 81 | 39 | 17 | 5 | | 28 | 16 | 3 | 57 | |
| | 9 | 733 | 3 | 9 | 0 | | 81 | | 13 | 7 | 124 | | 12 | 7 | 115 | |
| | 11 | 600 | 0 | 7 | 4 | | | | 11 | 3 | | | 10 | 5 | | |
| 6700 | 5 | 1340 | 0 | 16 | 2 | | 81 | | 25 | 1 | 53 | | 23 | 0 | 58 | |
| | 7 | 957 | 1 | 11 | 5 | | 81 | 58 | 18 | 0 | | 22 | 16 | 3 | | |
| | 9 | 744 | 4 | 9 | 1 | | 82 | | 14 | 0 | 126 | | 12 | 7 | 115 | |
| | 11 | 609 | 1 | 7 | 5 | | | | 11 | 5 | | | 10 | 5 | | |
| 6800 | 5 | 1350 | 0 | 16 | 2 | | 82 | | 25 | 0 | 54 | | 23 | 2 | | |
| | 7 | 971 | 3 | 11 | 5 | | 82 | 76 | 17 | 6 | | 50 | 16 | 5 | 58 | |
| | 9 | 755 | 5 | 9 | 1 | | 82 | | 13 | 8 | 125 | | 13 | 0 | | |
| | 11 | 618 | 2 | 7 | 5 | | | | 11 | 4 | | | 10 | 7 | 117 | |
| 6900 | 5 | 1380 | 0 | 16 | 3 | | 83 | | 25 | 2 | 54 | | 23 | 3 | | |
| | 7 | 985 | 5 | 11 | 6 | | 83 | 11 | 18 | 1 | | 42 | 16 | 6 | 58 | |
| | 9 | 766 | 6 | 9 | 2 | | 83 | | 14 | 1 | 127 | | 13 | 1 | 118 | |
| | 11 | 627 | 3 | 7 | 6 | | | | 11 | 6 | | | 10 | 8 | | |
| 7000 | 5 | 1400 | 0 | 16 | 4 | | 83 | | 25 | 2 | 55 | | 23 | 3 | | |
| | 7 | 1000 | 0 | 12 | 0 | | 83 | 28 | 18 | 1 | | 15 | 16 | 6 | 59 | |
| | 9 | 777 | 7 | 9 | 3 | | 84 | | 14 | 1 | 127 | | 13 | 1 | 118 | |
| | 11 | 636 | 4 | 7 | 7 | | | | 11 | 6 | | | 10 | 8 | | |
| 7100 | 5 | 1420 | 0 | 16 | 4 | | 84 | | 25 | 4 | 55 | | 24 | 0 | | |
| | 7 | 1014 | 2 | 12 | 0 | | 84 | 44 | 18 | 3 | | 5 | 17 | 1 | 59 | |
| | 9 | 788 | 8 | 9 | 3 | | 84 | | 14 | 3 | 129 | | 13 | 3 | 120 | |
| | 11 | 645 | 1 | 7 | 7 | | | | 11 | 8 | | | 10 | 10 | | |

ii iii dii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|------|----|------|----|----|----|----|----|----|---|-----|----|----|----|-----|-----|
| | 5 | 1440 | 0 | 17 | 0 | 84 | | 26 | 0 | 55 | | 24 | 0 | 60 | |
| 7200 | 7 | 1028 | 4 | 12 | 1 | | 60 | 18 | 4 | | 50 | 17 | 1 | | 0 |
| | 9 | 800 | 0 | 9 | 4 | 85 | | 14 | 4 | 130 | | 13 | 3 | 120 | |
| | 11 | 654 | 6 | 7 | 8 | | | 11 | 9 | | | 10 | 0 | | |
| | 5 | 1460 | 0 | 17 | 0 | 85 | | 26 | 0 | | | 24 | 1 | 60 | |
| 7300 | 7 | 142 | 6 | 12 | 1 | | 75 | 18 | 4 | 56 | | 20 | 7 | 2 | 40 |
| | 9 | 811 | 1 | 9 | 4 | 85 | | 14 | 4 | 130 | | | 13 | 4 | 121 |
| | 11 | 663 | 7 | 7 | 8 | | | 11 | 9 | | | | 11 | 0 | |
| | 5 | 1480 | 0 | 17 | 1 | 86 | | 26 | 2 | | | | 24 | 4 | 61 |
| 7400 | 7 | 1057 | 1 | 12 | 2 | | 4 | 18 | 6 | 56 | | 8 | 17 | 2 | 19 |
| | 9 | 822 | 2 | 9 | 5 | 86 | | 14 | 6 | 132 | | | 13 | 4 | 121 |
| | 11 | 672 | 8 | 7 | 9 | | | 12 | 0 | | | | 11 | 0 | |
| | 5 | 1500 | 0 | 17 | 2 | 86 | | 26 | 3 | | | | 24 | 2 | 61 |
| 7500 | 7 | 1071 | 3 | 12 | 3 | | 18 | 19 | 0 | 56 | | 52 | 17 | 3 | 58 |
| | 9 | 833 | 3 | 9 | 6 | 87 | | 14 | 7 | 133 | | | 13 | 5 | 122 |
| | 11 | 681 | 9 | 7 | 10 | | | 12 | 2 | | | | 11 | 1 | |
| | 5 | 1520 | 0 | 17 | 2 | 87 | | 26 | 3 | | | | 24 | 4 | 61 |
| 7600 | 7 | 1085 | 5 | 12 | 3 | | 31 | 19 | 0 | 57 | | 19 | 17 | 5 | 36 |
| | 9 | 844 | 4 | 9 | 6 | 87 | | 14 | 7 | 133 | | | 13 | 7 | 124 |
| | 11 | 690 | 10 | 7 | 10 | | | 12 | 1 | | | | 11 | 3 | |
| | 5 | 1540 | 0 | 17 | 3 | 87 | | 27 | 0 | | | | 24 | 4 | 62 |
| 7700 | 7 | 1100 | 0 | 12 | 4 | | 44 | 19 | 2 | 57 | | 5 | 17 | 5 | 12 |
| | 9 | 855 | 5 | 9 | 7 | 88 | | 15 | 0 | 135 | | | 13 | 7 | |
| | 11 | 700 | 0 | 8 | 0 | | | 12 | 3 | | | | 11 | 3 | 124 |
| | 5 | 1560 | 0 | 17 | 3 | 88 | | 27 | 2 | | | | 24 | 4 | 62 |
| 7800 | 7 | 1114 | 2 | 12 | 4 | | 56 | 19 | 4 | 57 | | 11 | 17 | 6 | 50 |
| | 9 | 866 | 6 | 9 | 7 | 88 | | 15 | 2 | 137 | | | 13 | 8 | |
| | 11 | 709 | 1 | 8 | 0 | | | 12 | 5 | | | | 11 | 4 | 125 |
| | 5 | 1580 | 0 | 17 | 4 | 88 | | 27 | 1 | | | | 24 | 5 | 63 |
| 7900 | 7 | 1128 | 4 | 12 | 5 | | 68 | 15 | 3 | 58 | | 12 | 17 | 6 | 25 |
| | 9 | 877 | 7 | 9 | 8 | 89 | | 15 | 1 | 136 | | | 13 | 8 | |
| | 11 | 718 | 2 | 4 | 1 | | | 12 | 4 | | | | 11 | 4 | 125 |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|------|----|------|-----|------|---|----|-----|------|----|-----|----|-----|------|-------|----|-----|
| | 5 | 1600 | 0 | 17 | 4 | | | 27 | 2 | | 25 | 1 | | | | |
| 8000 | 7 | 1142 | 6 | 12 | 5 | 89 | | 19 | 4 | 58 | | 18 | 0 | 63 | | |
| | 9 | 888 | 8 | 9 | 8 | | 79 | 15 | 2 | | 54 | 14 | 0 | | | |
| | 11 | 727 | 3 | 8 | 1 | 89 | | 12 | 5 | 173 | | 11 | 5 | 126 | | |
| 8100 | 5 | 1620 | 0 | 18 | 0 | | | 27 | 2 | | | 25 | 3 | | | |
| | 7 | 1157 | 1 | 12 | 5 | 90 | | 19 | 4 | 59 | | 18 | 2 | 63 | | |
| | 9 | 900 | 0 | 10 | 0 | | 0 | 15 | 2 | | 17 | 14 | 2 | | | |
| 8200 | 11 | 736 | 4 | 8 | 2 | 90 | | 12 | 5 | 137 | | 11 | 7 | 128 | | |
| | 5 | 1640 | 0 | 18 | 1 | | | 27 | 3 | | | 25 | 3 | 64 | | |
| | 7 | 1271 | 3 | 13 | 0 | 90 | | 19 | 5 | 59 | | 18 | 2 | | | |
| 8300 | 9 | 911 | 1 | 10 | 1 | | 10 | 15 | 3 | | 58 | 14 | 2 | 128 | | |
| | 11 | 745 | 5 | 8 | 3 | 91 | | 12 | 6 | 138 | | 11 | 7 | | | |
| | 5 | 1660 | 0 | 18 | 1 | | | 28 | 0 | | | 25 | 4 | 64 | | |
| 8400 | 7 | 1185 | 5 | 13 | 0 | 91 | | 20 | 0 | 59 | | 18 | 3 | | | |
| | 9 | 922 | 2 | 10 | 1 | | 19 | 15 | 5 | | 40 | 14 | 3 | 129 | | |
| | 11 | 754 | 6 | 8 | 3 | 91 | | 12 | 8 | 140 | | 11 | 8 | | | |
| 8500 | 5 | 1680 | 0 | 18 | 2 | | | 20 | 0 | | | 25 | 4 | 65 | | |
| | 7 | 1200 | 0 | 3 | 1 | 91 | | 20 | 0 | 60 | | 1 | 3 | | | |
| | 9 | 933 | 3 | 10 | 2 | | 28 | 15 | 5 | 140 | | 12 | 8 | 129 | | |
| 8600 | 11 | 763 | 7 | 8 | 4 | 92 | | 12 | 8 | | | 1 | 8 | | | |
| | 5 | 1700 | 0 | 8 | 2 | | | 28 | 1 | 60 | | 20 | 0 | 65 | | |
| | 7 | 1214 | 2 | 13 | 1 | 92 | | 20 | 1 | | | 18 | 1 | | | |
| 8700 | 9 | 944 | 4 | 10 | 2 | | 36 | 15 | 6 | | 40 | 14 | 4 | 30 | | |
| | 11 | 772 | 8 | 8 | 4 | 92 | | 12 | 9 | 141 | | | 5 | | | |
| | 5 | 1720 | 0 | 18 | 3 | | | 28 | 3 | | | 26 | 2 | 65 | | |
| 8800 | 7 | 1228 | 4 | 13 | 2 | 92 | | 20 | 3 | 60 | | 18 | 5 | | | |
| | 9 | 955 | 5 | 10 | 3 | | 44 | 15 | 8 | | 20 | 14 | 6 | 132 | | |
| | 11 | 781 | 9 | 8 | 5 | 93 | | 13 | 0 | 143 | | 1 | 0 | | | |
| 8900 | 5 | 1740 | 0 | 18 | 3 | | | 28 | 2 | 61 | | 26 | 1 | 66 | | |
| | 7 | 1242 | 5 | 13 | 2 | 93 | | 20 | 2 | | | 18 | 1 | | | |
| | 9 | 966 | 6 | 10 | 3 | | 51 | 15 | 7 | | 38 | 16 | 5 | 131 | | |
| 9000 | 11 | 790 | 10 | 8 | 5 | 93 | | 12 | 10 | 142 | | 11 | 10 | | | |

v xvi i ii iii iv v vi x vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | |
|------|----|------|---|----|---|----|----|---|-----|----|----|-----|
| | 5 | 1760 | 0 | 10 | 4 | | 28 | 4 | | 26 | 2 | |
| 8800 | 7 | 1257 | 1 | 13 | 3 | 98 | 20 | 4 | 61 | 16 | 18 | 5 |
| | 9 | 977 | 7 | 10 | 4 | | 16 | 0 | | 14 | 6 | 66 |
| | 11 | 800 | 0 | 8 | 6 | 94 | 13 | 1 | 144 | 12 | 0 | 132 |
| | 5 | 1780 | 0 | 18 | 4 | | 19 | 0 | | 26 | 4 | 66 |
| 8900 | 7 | 1271 | 3 | 13 | 3 | 49 | 20 | 5 | 61 | 9 | 1 | |
| | 9 | 988 | 8 | 10 | 4 | | 16 | 1 | | 14 | 8 | 56 |
| | 11 | 809 | 1 | 8 | 6 | 49 | 13 | 2 | 145 | 12 | 2 | 134 |
| | 5 | 1800 | 0 | 19 | 5 | | 29 | 0 | | 26 | 4 | |
| 9000 | 7 | 1285 | 5 | 13 | 4 | 49 | 20 | 5 | 62 | 19 | 1 | 67 |
| | 9 | 1000 | 0 | 10 | 5 | | 16 | 1 | 145 | 14 | 8 | 22 |
| | 11 | 818 | 2 | 8 | 7 | 95 | 13 | 2 | | 12 | 2 | 134 |
| | 5 | 1820 | 0 | 19 | 0 | | 29 | 1 | | 27 | 0 | |
| 9100 | 7 | 1300 | 0 | 13 | 4 | 95 | 20 | 6 | 62 | 19 | 2 | 67 |
| | 9 | 1011 | 1 | 10 | 5 | | 16 | 2 | 146 | 15 | 0 | 55 |
| | 11 | 827 | 3 | 8 | 7 | 95 | 13 | 3 | | 12 | 3 | 135 |
| | 5 | 1840 | 0 | 19 | 1 | | 29 | 1 | | 27 | 0 | |
| 9200 | 7 | 1314 | 2 | 13 | 5 | 95 | 20 | 6 | 63 | 19 | 2 | 68 |
| | 9 | 1022 | 2 | 10 | 6 | 96 | 16 | 2 | 146 | 15 | 0 | 20 |
| | 11 | 836 | 4 | 8 | 8 | | 13 | 3 | | 12 | 3 | 135 |
| | 5 | 1860 | 0 | 19 | 1 | | 30 | 0 | | 27 | 1 | |
| 9300 | 7 | 1328 | 4 | 13 | 5 | 96 | 21 | 3 | 62 | 19 | 3 | 68 |
| | 9 | 1033 | 3 | 10 | 6 | | 16 | 6 | 150 | 15 | 1 | 52 |
| | 11 | 845 | 5 | 8 | 8 | 96 | 13 | 7 | | 12 | 4 | 136 |
| | 5 | 1880 | 0 | 19 | 2 | | 19 | 4 | | 27 | 3 | |
| 9400 | 7 | 1342 | 6 | 13 | 6 | 96 | 21 | 2 | 63 | 19 | 5 | 68 |
| | 9 | 1044 | 4 | 10 | 7 | | 16 | 5 | 149 | 15 | 3 | 10 |
| | 11 | 854 | 6 | 8 | 9 | 97 | 13 | 6 | | 12 | 6 | 138 |
| | 5 | 1900 | 0 | 19 | 2 | | 29 | 0 | 64 | 22 | 2 | |
| 9500 | 7 | 1357 | 1 | 13 | 6 | 97 | 21 | 1 | | 19 | 6 | 69 |
| | 9 | 1055 | 5 | 10 | 7 | | 16 | 3 | 148 | 15 | 2 | 4 |
| | 11 | 863 | 7 | 9 | 9 | 97 | 13 | 5 | | 12 | 5 | 137 |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|-------|----|------|-----|------|----|-----|-----|------|----|-----|----|-----|------|-------|----|-----|
| | 5 | 1920 | 0 | 19 | 3 | | | 30 | 0 | 64 | | 27 | 4 | | | |
| 9600 | 7 | 1371 | 3 | 13 | 7 | 97 | | 31 | 3 | | | 19 | 6 | 66 | | |
| | 9 | 1056 | 6 | 10 | 0 | | 94 | 16 | 6 | | 0 | 15 | 4 | | | |
| | 11 | 872 | 8 | 8 | 10 | 98 | | 3 | 7 | 150 | | 12 | 7 | 139 | | |
| | 5 | 1940 | 0 | 19 | 3 | 98 | | 30 | 0 | 64 | | 28 | 0 | | | |
| 9700 | 7 | 1385 | 5 | 14 | 0 | | | 21 | 3 | | 36 | 20 | 0 | 69 | | |
| | 9 | 1077 | 7 | 10 | 8 | 98 | 95 | 16 | 6 | | | 15 | 5 | | | |
| | 11 | 88 | 9 | 8 | 10 | | | 13 | 7 | 150 | | 12 | 8 | 140 | | |
| | 5 | 1960 | 0 | 20 | 0 | 98 | | 30 | 3 | | | 28 | 0 | | | |
| 9800 | 7 | 1400 | 0 | 14 | 2 | | | 21 | 6 | 64 | | 20 | 0 | 70 | | |
| | 9 | 1088 | 8 | 1 | 1 | | 0 | 17 | 0 | | 8 | 15 | 5 | | | |
| | 11 | 890 | 10 | 9 | 1 | 100 | | 13 | 10 | 153 | | 12 | 8 | 140 | | |
| | 5 | 1980 | 0 | 20 | 0 | 99 | | 30 | 2 | | | 28 | 1 | | | |
| 9900 | 7 | 1414 | 2 | 14 | 2 | | | 21 | 5 | 65 | | 20 | 1 | 70 | | |
| | 9 | 1100 | 0 | 11 | 1 | | 0 | 16 | 8 | | 20 | 15 | 6 | | | |
| | 11 | 900 | 0 | 9 | 1 | 100 | | 13 | 9 | 152 | | 12 | 6 | 141 | | |
| | 5 | 2000 | 0 | 20 | 0 | 100 | | 30 | 3 | | | 28 | 4 | | | |
| 10000 | 7 | 1428 | 4 | 14 | 2 | | | 21 | 6 | 65 | | 20 | 4 | 69 | | |
| | 9 | 1111 | 1 | 11 | 1 | | 0 | 17 | 0 | | 55 | 10 | 0 | | | |
| | 11 | 909 | 1 | 9 | 1 | 100 | | 13 | 10 | 153 | | 15 | 1 | 144 | | |
| | 5 | 2020 | 0 | 20 | 1 | 100 | | 30 | 3 | 66 | | 28 | 2 | | | |
| 10100 | 7 | 1442 | 6 | 14 | 3 | | | 21 | 6 | | 2 | 20 | 2 | 71 | | |
| | 9 | 1122 | 2 | 11 | 2 | 101 | | 17 | 0 | | | 15 | 7 | | | |
| | 11 | 918 | 2 | 9 | 2 | | | 13 | 10 | 153 | | 12 | 10 | 142 | | |
| | 5 | 240 | 0 | 20 | 2 | 100 | | 30 | 4 | 66 | | 28 | 3 | | | |
| 10200 | 7 | 1457 | 1 | 14 | 4 | | | 22 | 0 | | 36 | 20 | 3 | 71 | | |
| | 9 | 1132 | 3 | 11 | 3 | 102 | | 17 | 1 | 154 | | 15 | 8 | | | |
| | 11 | 627 | 3 | 9 | 3 | | | 14 | 0 | | | 13 | 0 | 143 | | |
| | 5 | 2060 | 0 | 20 | 1 | 101 | | 31 | 3 | 65 | | 28 | 3 | | | |
| 10300 | 7 | 1471 | 3 | 14 | 3 | | | 22 | 4 | | 30 | 20 | 3 | 72 | | |
| | 9 | 1144 | 4 | 11 | 2 | 101 | 99 | 17 | 5 | 158 | | 15 | 8 | | | |
| | 11 | 936 | 4 | 9 | 2 | | | 14 | 4 | | | 13 | 0 | 143 | | |

i ii iii iiii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|------|----|------|----|----|---|-----|----|----|---|-----|----|----|---|-----|----|
| | 5 | 2080 | 0 | 20 | 2 | 101 | | 31 | 0 | 67 | | 28 | 4 | 72 | |
| 0400 | 7 | 1485 | 5 | 14 | 4 | | 98 | 22 | 1 | | 15 | 20 | 4 | | 32 |
| | 9 | 1555 | 5 | 11 | 3 | 102 | | 17 | 2 | 155 | | 16 | 0 | | |
| | 11 | 945 | 5 | 9 | 3 | | | 14 | 1 | | | 13 | 1 | 144 | |
| | 5 | 2100 | 0 | 20 | 2 | | | 31 | 1 | 67 | | 29 | 0 | | |
| 0500 | 7 | 1500 | 0 | 14 | 4 | 102 | | 22 | 2 | | 48 | 20 | 5 | 72 | |
| | 9 | 1166 | 6 | 11 | 3 | | 96 | 17 | 3 | 156 | | 16 | 1 | | 60 |
| | 11 | 954 | 6 | 9 | 3 | 102 | | 14 | 2 | | | 13 | 2 | 145 | |
| | 5 | 2120 | 0 | 20 | 3 | | | 31 | 3 | 67 | | 29 | 0 | | |
| 0600 | 7 | 1514 | 2 | 14 | 5 | 102 | | 22 | 4 | | | 20 | 5 | 73 | |
| | 9 | 1177 | 7 | 11 | 4 | | 94 | 17 | 5 | 158 | | 16 | 1 | | 15 |
| | 11 | 963 | 7 | 9 | 4 | 103 | | 14 | 4 | | | 13 | 2 | 145 | |
| | 5 | 2140 | 0 | 20 | 3 | | | 32 | 0 | 67 | | 29 | 1 | | |
| 0700 | 7 | 1528 | 4 | 14 | 5 | 103 | | 22 | 6 | | 0 | 20 | 6 | 73 | 42 |
| | 9 | 1188 | 8 | 11 | 4 | | 91 | 17 | 7 | 160 | | 16 | 2 | | |
| | 11 | 972 | 8 | 9 | 4 | 103 | | 14 | 6 | | | 13 | 3 | 146 | |
| | 5 | 2160 | 0 | 20 | 4 | | | 32 | 1 | 67 | | 29 | 2 | | |
| 0800 | 7 | 1542 | 6 | 14 | 6 | 103 | | 23 | 0 | | 13 | 21 | 0 | 73 | |
| | 9 | 1700 | 0 | 11 | 5 | | 88 | 17 | 8 | 161 | | 16 | 3 | | 69 |
| | 11 | 981 | 9 | 9 | 5 | 104 | | 14 | 7 | | | 13 | 4 | 147 | |
| | 5 | 2180 | 0 | 20 | 4 | | | 32 | 0 | 68 | | 29 | 2 | | |
| 0900 | 7 | 1557 | 1 | 14 | 6 | 104 | | 22 | 6 | | | 21 | 0 | 74 | |
| | 9 | 211 | 1 | 11 | 5 | | 84 | 17 | 7 | 160 | 20 | 16 | 3 | | 22 |
| | 11 | 910 | 10 | 9 | 5 | 104 | | 14 | 6 | | | 13 | 4 | 147 | |
| | 5 | 2200 | 0 | 21 | 0 | | | 32 | 1 | 68 | | 29 | 3 | | |
| 1000 | 7 | 1571 | 3 | 15 | 0 | 104 | | 23 | 0 | | | 21 | 1 | 74 | |
| | 9 | 1222 | 2 | 11 | 6 | | 80 | 17 | 8 | 161 | 52 | 16 | 4 | | 48 |
| | 11 | 1000 | 0 | 9 | 6 | 105 | | 14 | 7 | | | 13 | 5 | 148 | |
| | 5 | 2220 | 0 | 21 | 0 | | | 32 | 0 | 69 | | 29 | 3 | | |
| 1100 | 7 | 1580 | 5 | 15 | 0 | 105 | | 22 | 6 | | | 21 | 1 | 75 | |
| | 9 | 1230 | 3 | 11 | 6 | | 75 | 17 | 7 | 160 | 60 | 16 | 4 | | |
| | 11 | 1005 | 1 | 9 | 6 | 305 | | 14 | 6 | | | 13 | 5 | 148 | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv |
|-------|----|------|-----|------|----|-----|-----|------|----|-----|----|-----|------|-------|----|
| | 5 | 2240 | 0 | 21 | 1 | 106 | | 32 | 2 | 69 | 0 | 29 | 4 | 75 | |
| 11200 | 7 | 1600 | 0 | 15 | 1 | | 70 | 23 | 14 | | 22 | 11 | 2 | | |
| | 9 | 124 | 1 | 2 | 7 | | | 18 | 0 | 162 | | 28 | 5 | | |
| | 11 | 110 | 3 | 9 | 7 | 107 | | 14 | 8 | | | 13 | 5 | 145 | |
| | 5 | 2260 | 0 | 21 | 1 | | | 32 | 1 | 70 | | 30 | 3 | | |
| 11320 | 7 | 1614 | 2 | 15 | 1 | 106 | | 23 | 0 | | | 21 | 0 | 75 | |
| | 9 | 1255 | 5 | 11 | 7 | | 264 | 17 | 8 | 161 | 30 | 28 | 5 | | |
| | 11 | 1027 | 3 | 9 | 7 | 106 | | 14 | 7 | | | 13 | 7 | 150 | |
| | 5 | 2280 | 0 | 21 | 2 | | | 33 | 0 | 69 | | 30 | 0 | | |
| 11400 | 7 | 1628 | 4 | 15 | 2 | 106 | | 23 | 4 | | | 21 | 3 | 76 | |
| | 9 | 1266 | 6 | 11 | 8 | | 58 | 18 | 3 | | 15 | 16 | 6 | | |
| | 11 | 1036 | 4 | 9 | 8 | 107 | | 15 | 0 | 165 | | 13 | 7 | 150 | |
| | 5 | 2300 | 0 | 21 | 2 | | | 32 | 4 | 70 | | 30 | 1 | | |
| 11500 | 7 | 1642 | 6 | 15 | 2 | 107 | | 23 | 8 | | | 21 | 4 | 76 | |
| | 9 | 1277 | 7 | 11 | 8 | | 151 | 18 | 2 | | 20 | 16 | 7 | | |
| | 11 | 1045 | 5 | 9 | 8 | 107 | | 14 | 10 | 164 | | 13 | 8 | 152 | |
| | 5 | 2320 | 0 | 21 | 3 | | | 33 | 0 | | | 30 | 2 | | |
| 11600 | 7 | 1628 | 4 | 15 | 3 | 107 | | 23 | 4 | 70 | | 21 | 5 | 76 | |
| | 9 | 1288 | 8 | 12 | 0 | | 44 | 18 | 3 | 165 | 50 | 15 | 8 | | |
| | 11 | 1054 | 6 | 9 | 9 | 108 | | 15 | 0 | | | 13 | 9 | 153 | |
| | 5 | 2340 | 0 | 21 | 3 | | | 33 | 2 | 70 | | 30 | 3 | | |
| 11700 | 7 | 1671 | 3 | 15 | 3 | 108 | | 23 | 6 | | | 21 | 6 | 76 | |
| | 9 | 1309 | 5 | 12 | 0 | | 36 | 18 | 5 | | 10 | 17 | 0 | | |
| | 11 | 106 | 7 | 9 | 9 | 108 | | 15 | 2 | 167 | | 13 | 10 | 153 | |
| | 5 | 2360 | 0 | 21 | 4 | | | 33 | 1 | 71 | | 30 | 3 | | |
| 11800 | 7 | 1685 | 5 | 15 | 4 | 108 | | 23 | 5 | | | 21 | 6 | 77 | |
| | 9 | 1311 | 1 | 12 | 1 | | 28 | 18 | 4 | | 14 | 17 | 0 | | |
| | 11 | 107 | 8 | 9 | 10 | 109 | | 15 | 1 | 166 | | 13 | 10 | 153 | |
| | 5 | 2380 | 0 | 21 | 4 | | | 33 | 2 | 71 | | 30 | 4 | | |
| 11900 | 7 | 1700 | 0 | 15 | 4 | 109 | | 23 | 6 | | | 21 | 0 | 77 | |
| | 9 | 1323 | 2 | 12 | 1 | | 19 | 18 | 5 | | 43 | 17 | 1 | | |
| | 11 | 081 | 9 | 9 | 10 | 109 | | 15 | 2 | 167 | | 14 | 3 | 154 | |

i ii iii iv v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-------|----|------|----|----|---|-----|-----|----|---|-----|----|----|---|-----|----|
| | 5 | 2400 | 0 | 22 | 0 | 109 | | 33 | 4 | 71 | | 31 | 0 | 77 | |
| 12000 | 7 | 1714 | 2 | 15 | 5 | | 10 | 14 | 1 | | | 22 | 1 | | 55 |
| | 9 | 1335 | 3 | 12 | 2 | 110 | | 18 | 7 | 163 | 1 | 17 | 2 | | |
| | 11 | 0900 | 10 | 10 | 0 | | | 15 | 4 | | | 14 | 1 | 155 | |
| | 5 | 2420 | 0 | 22 | 0 | | | 33 | 3 | 72 | | 31 | 0 | | |
| 12100 | 7 | 1728 | 4 | 15 | 5 | 110 | | 24 | 3 | | | 22 | 1 | 78 | |
| | 9 | 1344 | 4 | 12 | 2 | | 0 | 18 | 6 | 163 | 4 | 17 | 2 | | 10 |
| | 11 | 1100 | 0 | 10 | 0 | 110 | | 15 | 3 | | | 14 | 1 | 155 | |
| | 5 | 2440 | 0 | 22 | 0 | | | 33 | 4 | 72 | | 31 | 1 | | |
| 12200 | 7 | 1742 | 6 | 15 | 5 | 110 | | 24 | 1 | | | 22 | 2 | 78 | |
| | 9 | 1355 | 5 | 12 | 2 | | 100 | 18 | 7 | | 32 | 17 | 3 | | 32 |
| | 11 | 1109 | 1 | 10 | 0 | 110 | | 15 | 4 | 169 | | 14 | 2 | 156 | |
| | 5 | 2450 | 0 | 22 | 1 | | | 34 | 5 | 72 | | 31 | 2 | | |
| 12300 | 7 | 1757 | 1 | 15 | 6 | 110 | | 24 | 2 | | | 22 | 3 | 78 | |
| | 9 | 1366 | 6 | 12 | 3 | | 90 | 18 | 8 | | 60 | 17 | 4 | 157 | 54 |
| | 11 | 1118 | 2 | 10 | 1 | 111 | | 15 | 6 | 170 | | 14 | 3 | | |
| | 5 | 2480 | 0 | 22 | 1 | | | 34 | 2 | | | 31 | 3 | 78 | |
| 12400 | 7 | 1771 | 3 | 15 | 6 | 111 | | 24 | 4 | 72 | | 22 | 4 | | |
| | 9 | 1377 | 7 | 12 | 3 | | 79 | 19 | 1 | | 16 | 17 | 5 | 158 | 76 |
| | 11 | 1127 | 3 | 10 | 1 | 111 | | 15 | 7 | 17 | | 14 | 4 | | |
| | 5 | 2500 | 0 | 22 | 2 | | | 34 | 1 | | | 32 | 0 | 78 | |
| 12500 | 7 | 1785 | 5 | 16 | 0 | 111 | | 24 | 3 | 73 | | 22 | 6 | | 20 |
| | 9 | 1388 | 8 | 12 | 4 | | 68 | 19 | 0 | | 17 | 17 | 7 | 160 | |
| | 11 | 1136 | 4 | 10 | 2 | 112 | | 15 | 6 | 171 | | 14 | 6 | | |
| | 5 | 2520 | 0 | 22 | 2 | | | 34 | 2 | | | 31 | 4 | 79 | |
| 12600 | 7 | 1805 | 0 | 16 | 0 | 112 | | 24 | 4 | 7 | | 22 | 5 | | |
| | 9 | 1400 | 0 | 12 | 4 | | 56 | 19 | 1 | | 44 | 17 | 6 | 159 | 39 |
| | 11 | 1145 | 5 | 10 | 2 | 112 | | 15 | 7 | 172 | | 14 | 5 | | |
| | 5 | 2540 | 0 | 22 | 3 | | | 34 | 3 | 73 | | 32 | 0 | 79 | |
| 12700 | 7 | 1815 | 2 | 16 | 1 | 112 | | 24 | 5 | | | 22 | 6 | | |
| | 9 | 1415 | 1 | 12 | 5 | | 44 | 19 | 2 | | 71 | 17 | 7 | 60 | 50 |
| | 11 | 1154 | 6 | 10 | 3 | 113 | | 1 | 8 | 173 | | 14 | 6 | | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv

| | | | | | | | | | | | | | | |
|-------|----|------|----|----|---|-----|-----|----|----|-----|----|----|----|-----|
| | 5 | 2560 | 0 | 22 | 3 | 113 | | 34 | 2 | 74 | | 32 | 0 | 80 |
| 12800 | 7 | 1825 | 1 | 16 | 1 | | 31 | 24 | 4 | | 72 | 12 | 6 | |
| | 9 | 1422 | 2 | 12 | 5 | | | 19 | 1 | 172 | | 17 | 7 | |
| | 11 | 1163 | 7 | 10 | 3 | 113 | | 15 | 7 | | | 14 | 6 | 16 |
| 12900 | 5 | 2580 | 0 | 22 | 4 | | 38 | 34 | 4 | 74 | 24 | 32 | 1 | |
| | 7 | 1842 | 6 | 16 | 2 | 113 | | 24 | 6 | | | 23 | 0 | 80 |
| | 9 | 1433 | 3 | 12 | 6 | | | 19 | 3 | 174 | | 17 | 8 | |
| 13000 | 11 | 1172 | 8 | 10 | 4 | 114 | 4 | 15 | 9 | | 50 | 14 | 7 | 161 |
| | 5 | 2600 | 0 | 22 | 4 | | | 35 | 0 | 74 | | 32 | 2 | |
| | 7 | 1857 | 1 | 16 | 2 | 114 | | 25 | 0 | | | 23 | 1 | 80 |
| 13100 | 9 | 1444 | 4 | 12 | 6 | | 104 | 19 | 4 | | 50 | 18 | 0 | |
| | 11 | 1181 | 9 | 10 | 4 | 114 | | 15 | 10 | 175 | | 14 | 8 | 162 |
| | 5 | 2620 | 0 | 22 | 4 | | | 34 | 4 | 75 | | 32 | 1 | |
| 13200 | 7 | 1871 | 3 | 16 | 2 | 114 | 90 | 24 | 6 | | 0 | 23 | 0 | 81 |
| | 9 | 1455 | 5 | 12 | 6 | | | 19 | 3 | 174 | | 17 | 8 | 161 |
| | 11 | 1190 | 10 | 10 | 4 | 114 | | 15 | 9 | | | 14 | 7 | |
| 13205 | 5 | 2640 | 0 | 23 | 0 | | 75 | 35 | 1 | 75 | 25 | 32 | 2 | |
| | 7 | 1885 | 5 | 16 | 3 | 114 | | 25 | 1 | | | 23 | 1 | 81 |
| | 9 | 1466 | 6 | 12 | 7 | | | 19 | 5 | 176 | | 18 | 0 | 162 |
| 13300 | 11 | 1200 | 0 | 10 | 5 | 115 | 60 | 16 | 0 | | 24 | 14 | 8 | |
| | 5 | 2660 | 0 | 23 | 0 | | | 35 | 2 | 75 | | 32 | 4 | |
| | 7 | 1900 | 0 | 16 | 3 | 115 | | 25 | 2 | | | 23 | 3 | 81 |
| 13400 | 9 | 1477 | 7 | 12 | 0 | | 44 | 19 | 6 | | 48 | 18 | 2 | 164 |
| | 11 | 1209 | 1 | 10 | 5 | 115 | | 16 | 1 | 177 | | 14 | 10 | |
| | 5 | 2680 | 0 | 23 | 1 | | | 35 | 1 | 76 | | 32 | 3 | |
| 13500 | 7 | 1914 | 2 | 16 | 4 | 115 | 44 | 25 | 1 | | 48 | 23 | 2 | 82 |
| | 9 | 1488 | 8 | 12 | 8 | | | 19 | 5 | | | 18 | 1 | 163 |
| | 11 | 1218 | 2 | 10 | 6 | 116 | | 16 | 0 | 176 | | 14 | 9 | |
| 13500 | 5 | 2700 | 0 | 23 | 1 | | 44 | 33 | 2 | 76 | 48 | 32 | 4 | 82 |
| | 7 | 1925 | 4 | 16 | 4 | 116 | | 25 | 2 | | | 23 | 3 | |
| | 9 | 1500 | 0 | 12 | 8 | | | 19 | 6 | | | 18 | 2 | 164 |
| | 11 | 1227 | 3 | 10 | 6 | 116 | | 16 | 1 | 177 | | 14 | 10 | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-------|----|------|---|----|----|-----|-----|----|---|-----|----|----|---|-----|----|
| | 5 | 2720 | 0 | 23 | 2 | | | 35 | 3 | | | 33 | 0 | | |
| 13600 | 7 | 1942 | 6 | 16 | 5 | 116 | | 25 | 3 | 76 | | 23 | 4 | 82 | |
| | 9 | 1511 | 1 | 13 | 0 | | 28 | 19 | 7 | | 72 | 18 | 3 | 165 | 70 |
| | 11 | 1236 | 4 | 10 | 7 | 117 | | 16 | 2 | 178 | | 15 | 0 | | |
| | 5 | 2740 | 0 | 23 | 2 | | | 36 | 0 | | | 33 | 0 | 83 | |
| 13700 | 7 | 1671 | 3 | 16 | 5 | 117 | | 25 | 5 | 76 | | 23 | 4 | | 5 |
| | 9 | 1522 | 2 | 13 | 0 | 117 | 11 | 20 | 0 | 180 | 30 | 18 | 3 | 165 | |
| | 11 | 1245 | 5 | 10 | 7 | | | 16 | 4 | | | 15 | 0 | | |
| | 5 | 2760 | 0 | 23 | 2 | 117 | | 35 | 4 | 77 | | 33 | 1 | 83 | |
| 13800 | 7 | 1971 | 3 | 16 | 5 | 117 | 111 | 25 | 4 | | 17 | 23 | 5 | | 23 |
| | 9 | 1533 | 3 | 13 | 0 | 117 | | 19 | 8 | 179 | | 18 | 4 | 166 | |
| | 11 | 1254 | 6 | 10 | 7 | | | 16 | 3 | | | 15 | 1 | | |
| | 5 | 2780 | 0 | 23 | 2 | 117 | | 36 | 0 | 77 | | 33 | 2 | 83 | |
| 13900 | 7 | 1987 | 1 | 16 | 6 | | 94 | 25 | 5 | | 40 | 23 | 6 | | 39 |
| | 9 | 1544 | 4 | 13 | 1 | 118 | | 20 | 0 | 180 | | 18 | 5 | 167 | |
| | 11 | 1263 | 7 | 10 | 8 | | | 16 | 4 | | | 15 | 2 | | |
| | 5 | 2800 | 0 | 23 | 3 | 118 | | 36 | 1 | 77 | | 33 | 3 | 83 | |
| 14000 | 7 | 2000 | 0 | 16 | 6 | | 76 | 25 | 6 | | 53 | 24 | 0 | | 56 |
| | 9 | 1555 | 5 | 13 | 1 | 118 | | 20 | 1 | 181 | | 18 | 6 | 168 | |
| | 11 | 1272 | 8 | 10 | 8 | | | 16 | 5 | | | 15 | 3 | | |
| | 5 | 2820 | 0 | 23 | 4 | 118 | | 36 | 3 | 77 | | 33 | 2 | 84 | |
| 14100 | 7 | 2014 | 2 | 17 | 0 | | 58 | 26 | 1 | | 9 | 23 | 6 | | 72 |
| | 9 | 1566 | 6 | 13 | 2 | 119 | | 20 | 3 | 183 | | 18 | 5 | 167 | |
| | 11 | 1281 | 9 | 10 | 9 | | | 16 | 7 | | | 15 | 2 | | |
| | 5 | 2840 | 0 | 23 | 4 | 119 | | 36 | 2 | 78 | | 33 | 4 | 84 | |
| 14200 | 7 | 2028 | 4 | 17 | 0 | | 39 | 26 | 0 | | 4 | 24 | 1 | | 4 |
| | 9 | 1577 | 7 | 12 | 7 | 119 | | 20 | 2 | 182 | | 18 | 7 | 169 | |
| | 11 | 1290 | 0 | 0 | 9 | | | 16 | 6 | | | 15 | 4 | | |
| | 5 | 2860 | 0 | 24 | 0 | 119 | | 36 | 3 | 78 | | 33 | 0 | 84 | |
| 14300 | 7 | 2042 | 6 | 17 | 1 | | 20 | 26 | 1 | | 26 | 24 | 2 | | 20 |
| | 9 | 1588 | 8 | 13 | 3 | | | 20 | 3 | 183 | | 18 | 8 | | |
| | 11 | 1200 | 0 | 10 | 10 | 120 | | 16 | 7 | | | 15 | 5 | 170 | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|-------|----|------|-----|------|----|-----|-----|------|----|----|-----|----------------|------|-------|-----|-----|
| | 5 | 2880 | 0 | 24 | 1 | | | | 36 | 4 | | | 33 | 4 | | |
| 14400 | 7 | 2057 | 1 | 17 | 2 | 119 | | | 26 | 2 | 78 | | 24 | 1 | 85 | |
| | 9 | 1600 | 0 | 13 | 4 | | I | | 20 | 4 | | 4 ^s | 18 | 7 | | |
| | 11 | 1309 | 1 | 11 | 0 | 120 | | | 6 | 8 | 184 | | 15 | 7 | 169 | |
| | 5 | 2900 | 0 | 24 | 0 | | | | 37 | 0 | | | 34 | 0 | | |
| 14500 | 7 | 2071 | 3 | 17 | 1 | 120 | | | 26 | 3 | 78 | | 24 | 2 | 85 | |
| | 9 | 1611 | 1 | 13 | 3 | | 100 | | 20 | 5 | | 7 ^c | 18 | 8 | | |
| | 11 | 1318 | 2 | 10 | 10 | 120 | | | 16 | 9 | 185 | | 15 | 5 | 170 | |
| | 5 | 2920 | 0 | 24 | 1 | | | | 36 | 4 | | | 34 | 1 | 85 | |
| 14600 | 7 | 2085 | 5 | 17 | 2 | 120 | | | 26 | 2 | 79 | | 24 | 3 | | |
| | 9 | 1622 | 2 | 13 | 4 | | 80 | | 20 | 4 | | 64 | 19 | 0 | | |
| | 11 | 1327 | 3 | 11 | 0 | 121 | | | 16 | 8 | 184 | | 15 | 5 | 171 | |
| | 5 | 2940 | 0 | 24 | 1 | | | | 37 | 1 | | | 34 | 2 | 85 | |
| 14700 | 7 | 2100 | 0 | 17 | 2 | 121 | | | 26 | 4 | 79 | | 24 | 4 | | |
| | 9 | 1633 | 3 | 13 | 4 | | 59 | | 20 | 6 | | 6 | 19 | 1 | 172 | |
| | 11 | 1336 | 4 | 11 | 0 | 121 | | | 16 | 10 | 186 | | 15 | 7 | | |
| | 5 | 2960 | 0 | 24 | 2 | | | | 37 | 0 | | | 34 | 2 | 86 | |
| 14800 | 7 | 2114 | 2 | 17 | 3 | 121 | | | 26 | 3 | 80 | | 24 | 4 | | |
| | 9 | 1644 | 4 | 13 | 5 | | 38 | | 20 | 5 | 185 | 0 | 19 | 1 | | |
| | 11 | 1345 | 5 | 11 | 1 | 122 | | | 16 | 9 | | | 15 | 7 | 172 | |
| | 5 | 2980 | 0 | 24 | 2 | | | | 37 | 1 | | | 34 | 3 | 86 | |
| 14900 | 7 | 2128 | 4 | 17 | 3 | 122 | | | 26 | 4 | 80 | | 24 | 5 | | |
| | 9 | 1655 | 5 | 13 | 5 | | 16 | | 20 | 6 | | 20 | 19 | 2 | 173 | |
| | 11 | 1354 | 6 | 11 | 1 | 122 | | | 16 | 10 | 186 | | 15 | 8 | | |
| | 5 | 3000 | 0 | 24 | 2 | | | | 37 | 2 | | | 34 | 4 | 86 | |
| 15000 | 7 | 2142 | 6 | 17 | 3 | 122 | | | 26 | 5 | 80 | | 24 | 6 | | |
| | 9 | 1666 | 6 | 13 | 5 | | 116 | | 20 | 7 | 187 | 40 | 19 | 3 | 174 | |
| | 11 | 1327 | 3 | 11 | 1 | 123 | | | 17 | 0 | | | 15 | 9 | | |
| | 5 | 3020 | 0 | 24 | 3 | | | | 37 | 3 | | | 34 | 3 | 87 | |
| 15100 | 7 | 2157 | 1 | 17 | 4 | 122 | | | 26 | 6 | 80 | | 24 | 5 | | |
| | 9 | 1672 | 7 | 13 | 6 | | 94 | | 20 | 8 | 188 | 50 | 19 | 2 | 173 | |
| | 11 | 1372 | 8 | 1 | 2 | 123 | | | 17 | 1 | | | 15 | 8 | | |

ii iii iiii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-------|----|------|----|----|---|-----|-----|----|---|-----|----|----|----|-----|----|
| | 5 | 3040 | 0 | 24 | 3 | 123 | | 38 | 0 | 80 | | 34 | 4 | 87 | |
| 15200 | 7 | 2171 | 3 | 7 | 4 | 123 | 71 | 27 | 1 | 0 | 0 | 24 | 6 | 87 | 52 |
| | 9 | 1688 | 8 | 13 | 6 | 123 | | 21 | 1 | 190 | | 19 | 3 | 174 | |
| | 11 | 1381 | 9 | 11 | 2 | | | 17 | 3 | | | 15 | 9 | | |
| | 5 | 3060 | 0 | 24 | 4 | 123 | | 37 | 3 | 81 | | 25 | 0 | 87 | |
| 15300 | 7 | 2185 | 5 | 17 | 5 | 123 | 48 | 26 | 6 | | 72 | 25 | 0 | | 75 |
| | 9 | 1700 | 0 | 13 | 7 | 124 | | 20 | 8 | 188 | | 16 | 4 | 175 | |
| | 11 | 1390 | 10 | 11 | 3 | | | 17 | 1 | | | 15 | 10 | | |
| | 5 | 3080 | 0 | 24 | 4 | 124 | 24 | 38 | 0 | 81 | | 35 | 0 | 88 | |
| 15400 | 7 | 2200 | 0 | 17 | 5 | 124 | | 27 | 1 | | 10 | 25 | 0 | | 0 |
| | 9 | 1711 | 1 | 13 | 7 | 124 | | 21 | 1 | 190 | | 19 | 4 | 175 | |
| | 11 | 1400 | 0 | 11 | 3 | | | 17 | 3 | | | 15 | 10 | | |
| | 5 | 3100 | 0 | 25 | 0 | 124 | | 38 | 1 | 81 | | 35 | 1 | 88 | |
| 15500 | 7 | 2214 | 2 | 17 | 6 | 125 | 0 | 27 | 2 | | 29 | 25 | 1 | | 12 |
| | 9 | 1722 | 2 | 13 | 8 | 125 | | 21 | 2 | 191 | | 19 | 5 | 176 | |
| | 11 | 1409 | 1 | 11 | 4 | | | 17 | 4 | | | 16 | 0 | | |
| | 5 | 3120 | 0 | 25 | 0 | 124 | | 38 | 0 | 82 | | 35 | 2 | 88 | |
| 15600 | 7 | 2228 | 4 | 17 | 6 | 124 | 100 | 27 | 1 | | 20 | 25 | 2 | | 24 |
| | 9 | 1733 | 3 | 13 | 8 | 125 | | 21 | 1 | 190 | | 19 | 6 | 177 | |
| | 11 | 1418 | 2 | 11 | 4 | | | 17 | 3 | | | 16 | 1 | | |
| | 5 | 3140 | 0 | 25 | 0 | 125 | 71 | 38 | 1 | 82 | | 35 | 3 | 88 | |
| 15700 | 7 | 2242 | 6 | 17 | 6 | 125 | | 27 | 2 | | 38 | 25 | 3 | | 36 |
| | 9 | 1744 | 4 | 13 | 8 | 125 | | 21 | 2 | 191 | | 19 | 7 | 178 | |
| | 11 | 1427 | 3 | 11 | 4 | | | 17 | 4 | | | 16 | 2 | | |
| | 5 | 3160 | 0 | 25 | 1 | 125 | | 38 | 2 | 82 | | 35 | 2 | 89 | |
| 15800 | 7 | 2257 | 1 | 18 | 0 | 125 | 50 | 27 | 3 | | 56 | 25 | 2 | | 47 |
| | 9 | 1655 | 5 | 14 | 0 | 126 | | 21 | 3 | 192 | | 19 | 6 | 177 | |
| | 11 | 1436 | 4 | 11 | 5 | | | 17 | 5 | | | 16 | 1 | | |
| | 5 | 3180 | 0 | 25 | 1 | 126 | | 38 | 3 | 82 | | 35 | 3 | 89 | |
| 15900 | 7 | 2271 | 3 | 18 | 0 | 126 | 24 | 27 | 4 | | 74 | 25 | 5 | | 58 |
| | 9 | 1766 | 6 | 14 | 0 | 126 | | 21 | 4 | 193 | | 16 | 7 | 178 | |
| | 11 | 1445 | 5 | 11 | 8 | | | 17 | 6 | | | 16 | 2 | | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | |
|-------|----|------|----|----|---|-----|-----|----|-----|----|---|-----|----|
| | 5 | 3200 | 0 | 25 | 1 | | 39 | 0 | | 35 | 4 | | |
| 16000 | 7 | 2284 | 4 | 18 | 0 | 125 | | | 82 | | | 89 | 59 |
| | 9 | 1777 | 7 | 14 | 0 | | 124 | | | 10 | 8 | | |
| | 11 | 1454 | 6 | 11 | 5 | 126 | | | 195 | | 3 | 179 | |
| | 5 | 3220 | 0 | 25 | 2 | | | 38 | 3 | | 0 | | |
| 16100 | 7 | 2300 | 0 | 18 | 1 | 125 | | | 83 | | 5 | 89 | |
| | 9 | 1788 | 8 | 14 | 1 | | 78 | | | 8 | 0 | | |
| | 11 | 1453 | 7 | 11 | 6 | 127 | | | 193 | | 4 | 180 | |
| | 5 | 3240 | 0 | 25 | 2 | | | 39 | 0 | | 0 | 90 | |
| 16200 | 7 | 2314 | 2 | 18 | 1 | 127 | | | 83 | | 5 | | |
| | 9 | 1800 | 0 | 14 | 1 | | 71 | | | 15 | 0 | 180 | |
| | 11 | 1472 | 8 | 11 | 6 | 127 | | | 195 | | 4 | | |
| | 5 | 3260 | 0 | 25 | 3 | | | 39 | 1 | | 1 | 90 | |
| 16300 | 7 | 2328 | 4 | 18 | 2 | 127 | | | 83 | | 5 | | |
| | 9 | 1811 | 1 | 14 | 2 | | 44 | | | 32 | 1 | 181 | |
| | 11 | 1481 | 9 | 11 | 7 | 128 | | | 195 | | 5 | | |
| | 5 | 2280 | 0 | 25 | 3 | | | 39 | 0 | | 1 | 90 | |
| 16400 | 7 | 2242 | 6 | 18 | 2 | 128 | | | 84 | | 5 | | |
| | 9 | 1822 | 2 | 14 | 2 | | 16 | | | 20 | 1 | 181 | |
| | 11 | 1490 | 10 | 11 | 7 | 128 | | | 195 | | 5 | | |
| | 5 | 3300 | 0 | 25 | 3 | | | 39 | 1 | | 1 | 91 | |
| 16500 | 7 | 2357 | 1 | 18 | 2 | 128 | | | 84 | | 6 | | |
| | 9 | 1833 | 3 | 14 | 2 | | 116 | | | 39 | 1 | 181 | |
| | 11 | 1500 | 0 | 11 | 7 | | | | 196 | | 5 | | |
| | 5 | 3320 | 0 | 25 | 4 | | | 39 | 2 | | 2 | 91 | |
| 16600 | 7 | 2371 | 3 | 18 | 3 | 128 | | | 84 | | 0 | | |
| | 9 | 1844 | 4 | 14 | 3 | | 88 | | | 52 | 2 | 182 | |
| | 11 | 1509 | 1 | 11 | 8 | 129 | | | 197 | | 6 | | |
| | 5 | 3340 | 0 | 25 | 4 | | | 39 | 3 | | 3 | 91 | |
| 16700 | 7 | 2385 | 5 | 18 | 3 | 129 | | | 84 | | 1 | | |
| | 9 | 1255 | 5 | 14 | 3 | | 59 | | | 58 | 3 | 183 | |
| | 11 | 1512 | 2 | 11 | 3 | 129 | | | 198 | | 7 | | |

i ii iii iv v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | | |
|-------|----|------|----|----|----|-----|-----|----|---|-----|----|----|----|-----|----|
| | 5 | 3360 | 0 | 26 | 0 | | | 40 | I | 84 | | 36 | 4 | 91 | |
| 16800 | 7 | 2400 | 0 | 18 | 4 | 129 | 30 | 28 | 2 | | 0 | 26 | 2 | | 56 |
| | 9 | 1866 | 6 | 14 | 4 | 130 | | 22 | 2 | 200 | | 20 | 4 | 184 | |
| | 11 | 1527 | 3 | 11 | 9 | | | 18 | 2 | | | 16 | 8 | | |
| | 5 | 3380 | 0 | 26 | 0 | 130 | | 39 | 3 | 85 | | 36 | 3 | 92 | |
| 16900 | 7 | 2414 | 2 | 18 | 4 | 130 | 0 | 28 | 2 | | 70 | 26 | 1 | 92 | |
| | 9 | 1877 | 7 | 14 | 4 | 130 | | 22 | 0 | 198 | | 20 | 3 | 183 | 64 |
| | 11 | 1536 | 4 | 11 | 9 | | | 18 | 0 | | | 16 | 7 | | |
| | 5 | 3400 | 0 | 26 | 0 | 130 | | 40 | 0 | 85 | | 36 | 4 | 92 | |
| 17000 | 7 | 2428 | 4 | 18 | 4 | 130 | | 28 | 4 | | 0 | 26 | 2 | 92 | 72 |
| | 9 | 1888 | 8 | 14 | 4 | 130 | 100 | 22 | 2 | 200 | | 20 | 4 | 184 | |
| | 11 | 1545 | 5 | 11 | 9 | | | 18 | 2 | | | 16 | 8 | | |
| | 5 | 3420 | 0 | 26 | 1 | 130 | | 40 | 1 | 85 | | 37 | 0 | 92 | |
| 17100 | 7 | 2442 | 6 | 18 | 5 | 130 | 70 | 28 | 5 | | 15 | 26 | 3 | | 80 |
| | 9 | 1900 | 0 | 14 | 5 | 131 | | 22 | 3 | 201 | | 20 | 5 | 185 | |
| | 11 | 1554 | 6 | 11 | 10 | | | 18 | 3 | | | 16 | 9 | | |
| | 5 | 3440 | 0 | 26 | 1 | 131 | | 40 | 0 | 86 | | 37 | 1 | 92 | |
| 17200 | 7 | 2457 | 1 | 18 | 5 | 131 | 39 | 28 | 4 | | 0 | 26 | 4 | | 88 |
| | 9 | 1911 | 1 | 14 | 5 | 131 | | 22 | 2 | 200 | | 20 | 6 | 186 | |
| | 11 | 1563 | 7 | 11 | 10 | | | 18 | 2 | | | 16 | 10 | | |
| | 5 | 3460 | 0 | 26 | 2 | 131 | | 40 | 1 | 86 | | 37 | 1 | 93 | |
| 17300 | 7 | 2471 | 3 | 18 | 6 | 131 | 8 | 28 | 5 | | 14 | 26 | 4 | | 2 |
| | 9 | 1922 | 2 | 14 | 6 | 132 | | 22 | 3 | 201 | | 20 | 6 | 186 | |
| | 11 | 1572 | 8 | 12 | 0 | | | 18 | 3 | | | 16 | 10 | | |
| | 5 | 3480 | 0 | 26 | 2 | 131 | | 40 | 0 | 87 | | 37 | 2 | 93 | |
| 17400 | 7 | 2485 | 5 | 18 | 6 | 131 | 108 | 28 | 4 | | 0 | 26 | 5 | | 9 |
| | 9 | 1933 | 3 | 14 | 6 | 132 | | 22 | 2 | 200 | | 20 | 7 | 187 | |
| | 11 | 1572 | 8 | 12 | 0 | | | 18 | 2 | | | 17 | 0 | | |
| | 5 | 3500 | 0 | 26 | 2 | 132 | | 40 | 3 | 86 | | 37 | 3 | 93 | |
| 17500 | 7 | 2500 | 0 | 18 | 6 | 132 | 76 | 28 | 0 | | 12 | 26 | 6 | | 16 |
| | 9 | 1944 | 4 | 14 | 6 | 132 | | 22 | 5 | 203 | | 20 | 8 | 188 | |
| | 11 | 1590 | 10 | 12 | 0 | | | 18 | 5 | | | 17 | 1 | | |

i ii iii iii v vi vii viii ix x xi xii xiii xiiii xv

| | | | | | | | | | | | | | | |
|-------|----|------|---|----|---|-----|-----|----|---|-----|----|----|-----|--|
| | 5 | 3520 | 0 | 26 | 3 | | | 40 | 2 | 87 | | 37 | 2 | |
| 17600 | 7 | 2514 | 2 | 19 | 0 | 132 | 44 | 28 | 6 | | 26 | 5 | 94 | |
| | 9 | 1955 | 5 | 14 | 7 | | | 22 | + | 202 | 10 | 7 | 187 | |
| | 11 | 1600 | 0 | 12 | 1 | 133 | | 18 | + | | 17 | 0 | | |
| | 5 | 3540 | 0 | 26 | 3 | | | 40 | 3 | | 37 | 3 | 94 | |
| 17700 | 7 | 2528 | 4 | 19 | 0 | 133 | 11 | 29 | 0 | 87 | 26 | 6 | 94 | |
| | 9 | 1966 | 6 | 14 | 7 | | | 22 | 5 | 203 | 20 | 8 | 188 | |
| | 11 | 1609 | 1 | 12 | 1 | 133 | | 18 | 5 | | 17 | 2 | | |
| | 5 | 3560 | 0 | 26 | 3 | | | 40 | 4 | | 37 | 4 | 94 | |
| 17800 | 7 | 2542 | 6 | 19 | 0 | 133 | | 29 | 1 | 87 | 27 | 0 | 94 | |
| | 9 | 1977 | 7 | 14 | 7 | | 111 | 22 | 6 | 204 | 21 | 0 | 189 | |
| | 11 | 618 | 2 | 12 | 1 | 133 | | 18 | 6 | | 17 | 2 | | |
| | 5 | 3580 | 0 | 26 | 4 | | | 41 | 0 | | 38 | 0 | 94 | |
| 17900 | 7 | 2556 | 8 | 19 | 1 | 133 | 78 | 29 | 2 | 87 | 27 | 1 | 94 | |
| | 9 | 1988 | 8 | 14 | 8 | | | 22 | 7 | 205 | 21 | 1 | 190 | |
| | 11 | 1627 | 3 | 12 | 2 | 134 | | 18 | 7 | | 17 | 3 | | |
| | 5 | 3600 | 0 | 26 | 4 | | | 40 | 4 | | 37 | 4 | 95 | |
| 18000 | 7 | 2571 | 3 | 19 | 1 | 134 | | 29 | 1 | 88 | 27 | 0 | 95 | |
| | 9 | 2000 | 0 | 14 | 8 | | 44 | 22 | 6 | 204 | 21 | 0 | 189 | |
| | 11 | 1635 | 4 | 12 | 2 | 134 | | 18 | 6 | | 17 | 2 | | |
| | 5 | 3620 | 0 | 26 | 4 | | | 41 | 0 | | 38 | 0 | 95 | |
| 18100 | 7 | 2585 | 5 | 19 | 1 | 134 | | 29 | 2 | 88 | 27 | | 95 | |
| | 9 | 2011 | 1 | 14 | 8 | | 10 | 22 | 5 | 205 | 21 | 1 | 190 | |
| | 11 | 1645 | 5 | 12 | 2 | 135 | | 18 | 7 | | 17 | 2 | | |
| | 5 | 3640 | 0 | 27 | 0 | | | 41 | 1 | | 38 | 1 | 95 | |
| 18200 | 7 | 2600 | 0 | 19 | 2 | 134 | | 29 | 3 | 88 | 27 | 2 | 95 | |
| | 9 | 2022 | 2 | 12 | 0 | | 110 | 22 | 8 | 205 | 21 | 2 | 191 | |
| | 11 | 654 | 6 | 12 | 3 | 135 | | 18 | 8 | | 17 | + | | |
| | 5 | 3660 | 0 | 17 | 0 | | | 41 | 2 | | 38 | 2 | 95 | |
| 18300 | 7 | 2614 | 2 | 19 | 2 | 135 | | 29 | 5 | 88 | 27 | 3 | 95 | |
| | 9 | 2033 | 3 | 15 | 0 | | 75 | 23 | 0 | 207 | 21 | 3 | 192 | |
| | 11 | 1663 | 7 | 12 | 3 | 135 | | 18 | 9 | | 17 | 5 | | |

i ii iii v vi vii viii ix x xi xii xiii xiiii xv xvi

| | | | | | | | | | | | | | | |
|------|----|------|----|----|---|-----|----|----|-----|----|----|---|-----|----|
| | 5 | 3680 | 0 | 27 | 1 | | 41 | 4 | 88 | | 38 | 1 | 56 | |
| 8400 | 7 | 2629 | 6 | 17 | 3 | 135 | 29 | 6 | | 8 | 27 | 2 | 54 | |
| | 9 | 2044 | 4 | 15 | 1 | 136 | 23 | 2 | 209 | | 21 | 2 | 191 | |
| | 11 | 1672 | 8 | 12 | 4 | | 19 | 0 | | | 17 | 4 | | |
| | 5 | 3700 | 0 | 27 | 1 | 136 | 14 | 2 | 89 | | 38 | 2 | 96 | |
| 8500 | 7 | 2642 | 4 | 17 | 3 | | 29 | 4 | | 77 | 17 | 3 | | 68 |
| | 9 | 2055 | 5 | 15 | 1 | 136 | 23 | 0 | 207 | | 21 | 3 | 192 | |
| | 11 | 1681 | 9 | 12 | 4 | | 18 | 9 | | | 17 | 5 | | |
| | 5 | 3720 | 0 | 27 | 1 | 136 | 41 | 3 | 89 | | 38 | 3 | | |
| 8600 | 7 | 2657 | 1 | 17 | 3 | | 29 | 5 | | 88 | 27 | 4 | 96 | 72 |
| | 9 | 2065 | 5 | 15 | 1 | 136 | 23 | 1 | 208 | | 21 | 4 | 193 | |
| | 11 | 1690 | 10 | 12 | 4 | | 18 | 10 | | | 17 | 6 | | |
| | 5 | 3740 | 0 | 27 | 2 | 136 | 42 | 0 | 89 | | 38 | 4 | 96 | |
| 8700 | 7 | 2926 | 6 | 19 | 4 | | 30 | 0 | | 10 | 27 | 5 | | 76 |
| | 9 | 2077 | 7 | 15 | 2 | 137 | 23 | 3 | 210 | | 21 | 5 | 194 | |
| | 11 | 1770 | 0 | 12 | 5 | | 19 | 1 | | | 17 | 7 | | |
| | 5 | 3760 | 0 | 27 | 2 | 137 | 42 | 1 | 89 | | 38 | 3 | 97 | |
| 8800 | 7 | 2685 | 5 | 19 | 4 | | 30 | 1 | | 21 | 27 | 4 | | 79 |
| | 9 | 2088 | 8 | 15 | 2 | 137 | 23 | 4 | 211 | | 21 | 4 | 193 | |
| | 11 | 1709 | 1 | 12 | 5 | | 19 | 2 | | | 17 | 6 | | |
| | 5 | 3780 | 0 | 27 | 2 | 137 | 42 | 0 | 90 | | 38 | 4 | 97 | |
| 8900 | 7 | 2700 | 0 | 19 | 4 | | 30 | 0 | | 10 | 27 | 5 | | 82 |
| | 9 | 2103 | 0 | 15 | 2 | 137 | 23 | 3 | 210 | | 21 | 5 | 194 | |
| | 11 | 1718 | 2 | 12 | 5 | | 19 | 1 | | | 17 | 7 | | |
| | 5 | 3800 | 0 | 27 | 3 | 137 | 42 | 1 | 90 | | 39 | 0 | 97 | |
| 9000 | 7 | 2714 | 2 | 19 | 5 | | 30 | 1 | | 10 | 27 | 6 | | 85 |
| | 9 | 2117 | 1 | 15 | 3 | 138 | 23 | 4 | 211 | | 21 | 6 | 195 | |
| | 11 | 1727 | 3 | 12 | 6 | | 19 | 2 | | | 17 | 8 | | |
| | 5 | 3820 | 0 | 27 | 3 | 138 | 42 | 2 | 90 | | 39 | 1 | 97 | |
| 9100 | 7 | 2728 | 4 | 19 | 5 | | 30 | 2 | | 20 | 28 | 6 | | 88 |
| | 9 | 2122 | 2 | 15 | 3 | 138 | 23 | 5 | 212 | | 21 | 7 | 196 | |
| | 11 | 1736 | 4 | 12 | 6 | | 19 | 3 | | | 17 | 9 | | |

| | i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|-------|----|------|-----|------|---|----|-----|------|----|---|-----|-----|------|-------|----|-----|
| | 5 | 3840 | 0 | 27 | 4 | | 138 | | 42 | 3 | 90 | | 39 | 0 | | 98 |
| 19200 | 7 | 74 | 5 | 15 | 6 | | | 18 | 30 | 3 | | 30 | 17 | 6 | | |
| | 9 | 213 | 3 | 15 | 4 | | | | 23 | 5 | 213 | 30 | 11 | 6 | | |
| | 11 | 74 | 5 | 12 | 7 | | 139 | | 19 | 4 | | | 17 | 8 | | 195 |
| 19300 | 5 | 386 | 0 | 27 | 4 | | | | 42 | 2 | 91 | | 19 | 1 | | |
| | 7 | 275 | 1 | 19 | 6 | | 138 | | 30 | 2 | | 8 | 28 | 0 | | 98 |
| | 9 | 214 | 4 | 15 | 4 | | | 118 | 23 | 5 | 212 | | 21 | 7 | | |
| 19400 | 11 | 175 | 6 | 12 | 7 | | 139 | | 19 | 3 | | | 17 | 9 | | 196 |
| | 5 | 3880 | 0 | 27 | 4 | | | | 42 | 3 | 91 | | 39 | 2 | | |
| | 7 | 2771 | 3 | 19 | 6 | | 139 | | 30 | 3 | | 17 | 28 | 1 | | 98 |
| 19500 | 9 | 2155 | 5 | 15 | 4 | | | 79 | 23 | 6 | 213 | | 21 | 8 | | |
| | 11 | 1765 | 7 | 12 | 7 | | 139 | | 19 | 4 | | | 17 | 10 | | 197 |
| | 5 | 3900 | 0 | 28 | 0 | | | | 42 | 4 | 91 | | 39 | 3 | | |
| 19600 | 7 | 2785 | 5 | 20 | 0 | | 139 | | 30 | 4 | | 26 | 28 | 2 | | 98 |
| | 9 | 2155 | 5 | 14 | 6 | | | 40 | 23 | 7 | 214 | | 22 | 0 | | 198 |
| | 11 | 1772 | 8 | 12 | 8 | | 140 | | 19 | 5 | | | 18 | 0 | | |
| 19605 | 5 | 3920 | 0 | 28 | 0 | | | | 42 | 3 | 92 | | 39 | 2 | | 99 |
| | 7 | 2800 | 0 | 20 | 0 | | 140 | | 30 | 3 | | 4 | 28 | 1 | | |
| | 9 | 2177 | 7 | 14 | 6 | | | 0 | 23 | 6 | 213 | | 22 | 0 | | 197 |
| 19700 | 11 | 1509 | 1 | 12 | 8 | | 140 | | 19 | 4 | | | 17 | 10 | | |
| | 5 | 3940 | 0 | 28 | 0 | | | | 42 | 4 | 92 | | 39 | 3 | | 99 |
| | 7 | 2814 | 2 | 20 | 0 | | 140 | 100 | 30 | 4 | | 12 | 28 | 2 | | |
| 19800 | 9 | 2182 | 2 | 14 | 6 | | | | 23 | 7 | 214 | | 22 | 0 | | 98 |
| | 11 | 1760 | 10 | 12 | 8 | | 140 | | 19 | 5 | | | 18 | 0 | | |
| | 5 | 3960 | 0 | 28 | 1 | | | | 43 | 0 | 92 | | 39 | 3 | | 100 |
| 19800 | 7 | 2828 | 4 | 20 | 1 | | 140 | 60 | 30 | 5 | | 20 | 28 | 2 | | |
| | 9 | 2200 | 0 | 15 | 6 | | | | 23 | 8 | | | 22 | 0 | | 198 |
| | 11 | 1800 | 0 | 12 | 9 | | 141 | | 19 | 6 | 215 | | 18 | 0 | | |
| 19900 | 5 | 3980 | 0 | 28 | 1 | | | | 42 | 3 | 93 | | 39 | 4 | | 100 |
| | 7 | 2842 | 6 | 20 | 1 | | 141 | 19 | 30 | 3 | | | 28 | 3 | | |
| | 9 | 2211 | 1 | 15 | 6 | | | | 23 | 6 | | 91 | 22 | 1 | | 199 |
| | 11 | 1805 | 1 | 12 | 9 | | 141 | | 19 | 4 | 213 | | 18 | 1 | | |

| i | ii | iii | iiii | v | vi | vii | viii | ix | x | xi | xii | xiii | xiiii | xv | xvi |
|----|------|-----|------|---|----|-----|------|----|---|-----|-----|------|-------|-----|-----|
| 5 | 4000 | 0 | 28 | 1 | | 141 | | 43 | 2 | | | 40 | 0 | | |
| 7 | 2857 | 1 | 20 | 1 | | | | 31 | 0 | 92 | | 28 | 4 | 100 | |
| 9 | 2222 | 2 | 15 | 6 | | 141 | 119 | 24 | 1 | | 36 | 22 | 2 | | 0 |
| 11 | 1818 | 2 | 12 | 9 | | | | 19 | 8 | 217 | | 18 | 2 | 200 | |

6.11.



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Q11



A generall recoming.

UT now for further declaration of that which hath bene hether to said, and of that which is now to be spoken of, for the quicke & readie arming of a battaile, p^{re}supposing first by the aforesaid tables, the length and breadth of that battaile, it is to be noted, as I suppose for the first way, wherein si^{xt} of footmen bee found in a ray, that all the pikes of all the companies, be set together in the inmost of all the armed pikes of all the companies, that is, that the one part of these armed pikes do go before, and the other behinde the whole arraie.

Do else, to make a more faire muster, as is wont to be done in marching after this other sorte, that the unarmed pikes of euery perticuler companie haue one part of their armed pikes, that are in that perticuler company before, and the other behinde.

Do else after another maruailous order, as at what time the Captaine doth commaund, that first there goe such a quantitie of armed pikes before the whole ray, and that there doe remaine as many more behinde the same ray, that may bee sufficient to arme, according to the proportion of the rest of the armed pikes, the two flankes of the battaile: and that the middle part bee deuided into so many maniples, or partes as wee will call the, as with their armed pikes before and behinde, they may make one with an other, the entiere length of the same battaile, if neede were to reduce them together. And of all these aboue saide sortes of arming ready^y, here following shalbe made a generall recoming, which shall serue for any number of footmen, that are to be set in a battaile, and to be quickly armed.

A generall reconing.

Now let vs put the case, that there were 5000. footemen of vnarmed Wikes, and 1450. armed with Corletes, which are in all 6450. the which would be reduced into a square battaile of ground this being a more profitable way, than that of people, thou shalt enter the tables, in the first Columnne, taking 6450. or the number most nere vnto it, because it skilleth little if it be 6400. and ouer against 6400. in the fiftenth Columnne, thou shalt finde that the battaile ought to be 56. in length, and 114 in breadth. And in the sixtenth Columnne thou shalt finde an ouerplus of 16. footemen, whē the same battaile shalbe set, the which 16. footemen, thou shalt adde to the 50. that did excede of the abouesaide 6450. footemen, and they will make 66. footemen. After thou shalt see how many times the length of the battaile (being considered from the best to backe) which is 56. is to be found in this number of 66. and thou shalt finde it once, and an ouerplus of 10. footemen, and for this one time, that the number 56. is found in 66. there shalbe one added to the breadth of the battaile, & they shall make 115. footemen in breadth from shoulder to shoulder. And thus thou shalt haue the battaile 56. ranckes long and 115. footemen in a rancke brode: as is to be seene by this figure: and there exceedeth 10. footemen, & which ten I do not place in the battaile.

The figure of the generall reconing.

Broad 115. footemen in a rancke.

Longe 56. ranckes.



of the generall reconing.

And who that desireth to know further: the 6450. footemen, doe marche in aray (as expert warrpers will haue it by odoz numbers) from 3. the lesser number, vnto 11. the greater, ordinarie in a rancke in breadyth, for so many ranches, as are to bee, supposing then that they marche by fve in a rancke, seeke in the seconde Columne, the number of fve, and ouer against it in the thirde Columne, thou shalt finde that there ought to bee 1280. ranches. But because there is not to be founde in the tables, other then the number of 6400. thou shalt take that which is the ouerplus, that is 50. it will make tenne ranches more, the which thou shalt adde to the 1280. ranches, and they will make 1290. ranches, thus 6450. footemen going in aray by 5. in a rancke, shalbe 1290. ranches, the like is to be vnderstande of the rest. Besides thou shalt see how many ranches the 1450. armed Pykes ought to be in length, and how many doeth excede ouer and aboue the ranches. In this sorte thou shalt deuide those armed pykes by the breadyth of the battaile, which is 115. thereof shal come 12. ranches in length, and an ouerplus of 70. armed pykes, the which, because they do not make an entier rancke, are afterwarde placed in that part of the battaile, that shall seeme to y^e Sergeant of greatest necessitie: and thus thou shalt finde y^e where the whole battaile ought to be 56. ranches long: & that the armed pykes are 12. ranches, it remaineth that the length of the vnarmed ought to be 44. ranches, the which shalbe in the middlest. The like reconing is to be made, if any will make a square battaile of number of people: not so much for to see the length & breadyth with the armed ranches, and that which doeth excede both within & without of this battaile, of a number of 5000. vnarmed footemen, and of 1450. armed with Cozlets, as also of what so euer other number, be it greater, or lesser then the aboue said.

Examples.

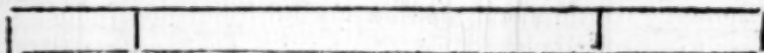
The which foresaid reconing it is supposed that the generall doth know it, (or some other person) to whom it doth appertaine to gene order of the maner, how to arme the battaile: to the end that hauing it in memorie, he may not stay vpon other, then to commaund his Captaines, or Sergrantes to set the same in a readiness, as in the examples following shall be shewed.

THE FIRST EXAMPLE.

NOW in case there be a number of 6450. footmen, betwene armed and vnarmed pikes, and that the vnarmed be 1450. and the vnarmed 5000. as is before set forth in the generall reconing, and that this number of footmen were with speede to be set into a battaile armed with Corletttes, it is necessarie that the Generall or some other, haue well in minde the reconing of the length and breadth of the whole battaile, and seuerally of the armed and vnarmed Pikes, to the end that if occasion do hap, as I haue already said, none other is to be done, than to commit to his Sargiants the order that they are to obserue in arming the battaile. And so let vs put the case that the length thereof be 56. ranckes, at 115. footmen in a rancke in breadth, in this sort, that is 12. ranckes in length of armed Corletttes, and an ouerplus of 70. armed footmen, and 44. ranckes of vnarmed, as is to be seene before in the generall reconing. In arming of the which battaile, let vs presuppose the first aboue named maner: that is, when those people do march in a raie, at as many as they wil in a rancke, as wel in length, as in breadth, with the vnarmed Pikes in the midst, and all the armed pikes, part set before, and part behinde: as in the first figure is to be seene.

The first figure

A raie, where one part of the armed Pikes do goe before, and the other behinde with the vnarmed Pikes in the middest.

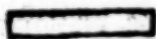


Letting the Readers to vnderstand, that the yelloiw colour doth signifie the armed footmen with Cozlets and the white the vnarmed. The which being supposed, there is committed to those armed ranckes that goe before, that of them there be made seuen ranckes for the length, from bzeast to backe 115. men for the bzeadth, from shoulder, to shoulder, as by the second figure is made manifest.

The second figure.

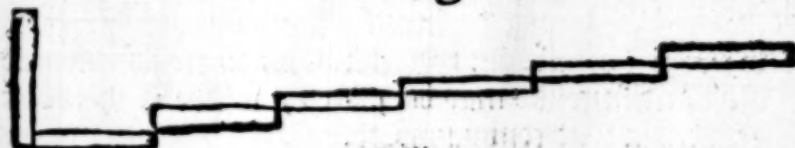
Long 7. ranckes.

Bzoade 115. men.



Straight after let 44. ranckes of vnarmed Pikes in length, be bestowed behind these armed ranckes at as many in a rancke in bzeadth, for so many as are in the raie, as you see to be in the third figure.

The third figure.



F.iii.

Examples:

And so 44. other ranckes of the next that are spoken of, shall approach in maner as is alredy sayde, doing orderly the like vnto the ende of the whole aray of the vnarmed pykes: because in this sort the whole battayle shall come to be framed, as you haue an example by the fourth figure.

The fourth Figure:

Broade 115. footemen in a rancke.

Long 51. ranckes.



When the raye of the vnarmed Pykes shall be thus framed & made into a battaile, from brest to backe after the armed Pykes at the head of the battaile, as is aboue sayde. A raye of armed Pykes shall be caused to march behind the vnarmed pikes, making fve ranckes in length at the tayle of the battaile, the which in thus doing, thou shalt finde to be 56. ranckes long, or as it pleaseth some to say 56. men, and 115. men brode in a rancke, with 7. ranckes of the armed Pykes at the head, and 5. ranckes also of the same armed Pykes at the tayle, as may be seene set forth by the fift figure, wherein I do not put the terme that do errede, because these and such like may be placed, where it shall best please him that commaundeth.

The

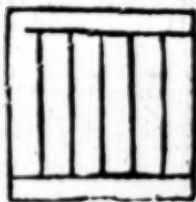
to arme a battaile.

The fift figure.

Bode 115. footemen in a rancke.

7

Long 56. ranckes.



5

Now that one hath in this sort appointed his battaile as above, a couple expert in the art of war shall goe the one to the head, and the other to the taile, and take away one or two ranckes from the breadth of the battaile for the one, for to arme two flankes, that is, that each one of them take care to arme one rancke: one rancke in breadth, both make two and somewhat more in length, and if there were people there it would make little more then one: thus taking one rancke from the head, and an other from the taile, there shall be two in a rancke for each rancke, and so according to the number that shall be taken away in breadth, it shall be double in length, wherefore a battaile well appointed, would be double in breadth to the length, according to the iudgement of skilfull warriors, as well auncient as moderate.

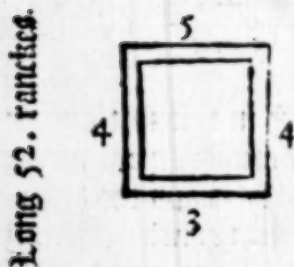
And thus we will suppose that there is taken from the headde, and from the taile two ranckes according to the iudgement of him, that shall arme the two flankes of the battaile, or more or lesse, as occasion shall happen, & thus the battaile shall be. 52. ranckes long at 123. footmen

Examples.

men in breadth for euerie rancke, and there doth ex-
ceede tenne footemen, which are not in the body of the
battaile, with five ranckes of armed Pikers, at the head,
and three ranckes at y^e taile, with foure in a rancke to
the two flankes of the armed Pikers, in such sorte as is
saue ordered by the sixt figure.

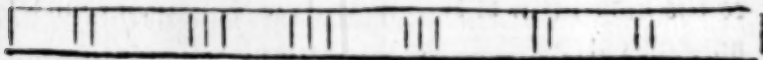
The sixt figure.

Word 1 2 3. footemen in a rancke.



The second example.

Being willing to arme a battaile quickly, according
to the second maner aboue said, in marching com-
panie by companie of euerie particuler Captaine, and
that each companie haue the one halfe of their armed
Pikers at the head, and the other at the taile: The which
may be expressely scene by the seuenth figure.



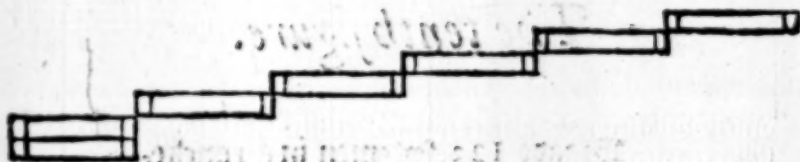
Aliue wherein there goeth companie by compar,
with the one halfe of their armed Pikers at the head
and the other at the taile.

Sup

Examples to arme a battaile.

Supposing therefore to haue in minde the selfe same
aboue said reconing, and that there are yet 5000.
fotemen of vnarmed Pikes, and 1450. fotemen
armed with Corſettes, with 56. in length, and
115. in bzeadth of y battaile, with ſeuē ranckes of
fotemen armed with Corſettes at the headdē, and fiue
rancks at y taile of the ſame, none other is to be done,
but to commit to each one of the Captaines, that they
doe make with their armed and vnarmed Pikes 56.
ranckes, ſeteing ſeuē ranckes of thoſe armed with corſ-
lettes at the headdē, and fiue ranckes at the taile. And
if any Captaine did lacke people to make the ranckes.
56. hee ſhall ioyne with another Captaine, ſo that be-
twene them two they may make 56. ranckes, putting
the ranckes of thone to the ſhoulder of the ranckes of
the other, in ſuch ſorte, as by this eight figure we haue
drawne ſor̄th that it ſhould be.

The eight figure.



AND they ſhall make the battaile 56. ranckes long
at a 115. fotemen in a ranke in bzeadth, with ſeuē
ranckes of armed Pikes at the head, and fiue ranckes
at the taile: as in the fiſt, ſeuēth, and this ninth figure
may be ſene.

Examples to arme a battaile.

The ninth figure.

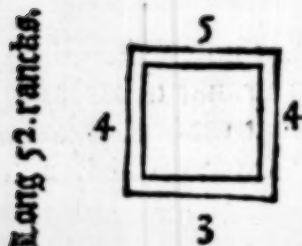
Broade 115. footemen in a rancke.



The which battaile being ordered as you see : and being willing to arme the two flankes thereof, the same shalbe done, that is done in the sixte figure : And thus the battaile shalbe 52. ranckes long, at 123. footemen in a rancke broade, with five ranckes of armed pikes at the head, and three ranckes at the taile, and foure footemen in a rancke of the armed pikes to each of the two flankes, as by the tenth figure we haue set forth a forme befoze your eyes.

The tenth figure.

Broade 123. footemen in a rancke.



Examples to arme a battaile

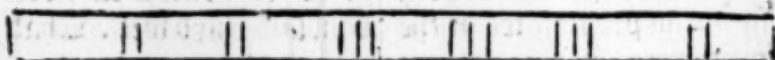
The third example.

Now there remaineth for vs to arme a number of people, set in the abouesaid third sort. That is, within the rate both goe maniple by maniple, that is, that one part of the armed footmen, that ought to arme the two flanches of the entiere battaile, are deuised into two, and one part goeth before all the maniples, and the other behinde: and that beside that cuerie maniple hath one part of his particular armed pikes before, and one part behinde, in such sort as the armed and vnarmed pikes of this, such a maniple going in arraie, is to the iust length of the battaile: the which let it bee said of all the other maniples.

And for to order with reason these sortes of maniples, this is to be done, let vs suppose that the armed and vnarmed pikes, are to the number aboue written, with a determination to reduce the battaile to the selfe same length & breadth, and that you wil haue them to goe in arraie by fise in a rancke in breadth, you shall deuise the breadth of y battaile of the vnarmed pikes. Pikes which is 115. as may be seene aboue, by fise therof shall come 22. maniples, and an ouerplus of three. And thus euery maniple shall be 52. rancks long, at 5. footmen in a rancke, with 5. rancks of armed footmen at y head, & 3. rancks at the taile, letting you to wit that the three ouerplus of 22. shall make in like sort a maniple in length: as here aboue from 3. footmen in a rancke in breadth, with 5. rancks in length of armed footmen at the head, and 3. at the taile: But because this maniple of three in a rancke in breadth, cometh to bee more narrow than the other maniples, thou for to cause that the ray may goe with an euennesse, shalt cause this maniple to go by fise in a rancke in breadth: as in the eleuenth figure is to be found.

The eleuenth figure.

In we wherein doth goe maniple by maniple, one part of the armed pikes at the head, and the other part at the ryle of the maniples.



Because these maniples happening after to be set in battayle, they shalbe set by thre in a rancke in b:eadth, and straight there shalbe ioyned vnto them the rest of the battaile: the which being needeful to reduce into forme, none other is to be done, but that the armed pikes, that doe march befoze the whole maniples, doe stretch themselves forth to foure in a rancke in b:eadth, making 52 ranckes in length, for a flanke of the battayle: as in the twelfe figure may clearly be perceyued.

The twelfth figure.

Boade 4. footemen in a rancke.

Long 52. ranckes.

The first flanke.



And to cause after that the maniples be drawn forth to the shoulder of this flanke, the one being armed to the side of the other. As in the thirtenth figure is shewed forth vnto vs.

Boade

The thirteenth figure.

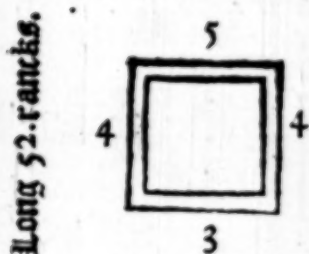
Broad 119. footemen in a ranke.



And they shall make the battayle 52. rancks long at 119. footemen in a rancke in breadth, with one flanke armed, at foure in a rancke, as in the thirteenth figure it is ordered. And this being done, the armed Pykes shall follow, as they may goe behinde the whole raye of the armed and unarmed Pykes: And they shall be stretched forth likewise to foure in a rancke from the other flanke. And the battaile shall come to be, 52. rancks long at 123. footemen in a rancke in breadth, with five rancks of armed Pykes at the head, & three at the tayle, with foure in a rancke of the armed pykes to the two flankes, as by the forme in the fourteenth figure is to be shewed.

The fourteenth figure.

Broad 123. footemen in a rancke.



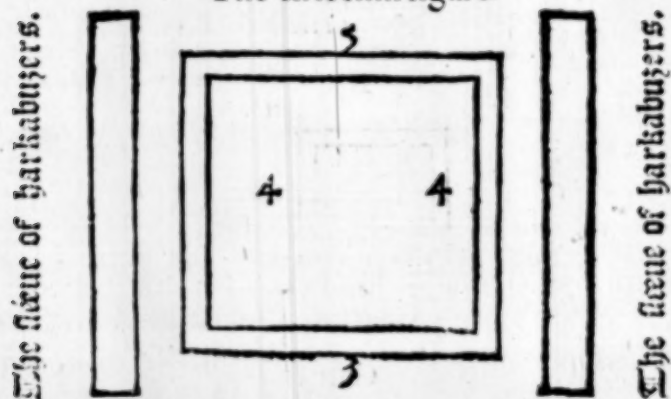
G.iii.

With

Examples to arme a battaile.

With aduise that the Ansignes would be set and vni-
ted together in the middell of the battaile: or else
ouerthwart the same: and as it shal seme most best in
making them most sure, and wel warded. It remaineth
that we do intreat how to make the flœues of the har-
kabuzers, and winges of the horsemen. Aduising first
each one that doth reade this, that although hetherto
there is nothing spoken of Harkabuzers, neuerthelſſe
it is to be supposed that from the beginning, before the
people be sette in araic, these harkabuzers, that is, that
part which goeth before, ought to be the first to be there
placed, and to make the flœue in such sort, as it be as
long, or more, as neede requireth, as the length of the
battaile is to be, and the which raie of harkabuzers is
called a flœue. In this sort causing so many ranckes of
the same harkabuzers to remaine of those, that is, that
do march before the raie of all the armed and vnar-
med pikes, as is the length of the battaile from 10. vnto
15. footmen in a rancke, in breadth, and to the shoul-
der of this flœue, the battaile shall come to be formed
with those armed pikes round about, as is aboue said,
distant eight or twelue foote from the flœue. And the
rest of the Harkabuzers that do march behinde the ar-
med and vnarmed pikes, shall make another flœue on
the other flanke of the battaile, distant, in proportion
to the first: and as in the fiftenth figure appeareth.

The fiftenth figure.

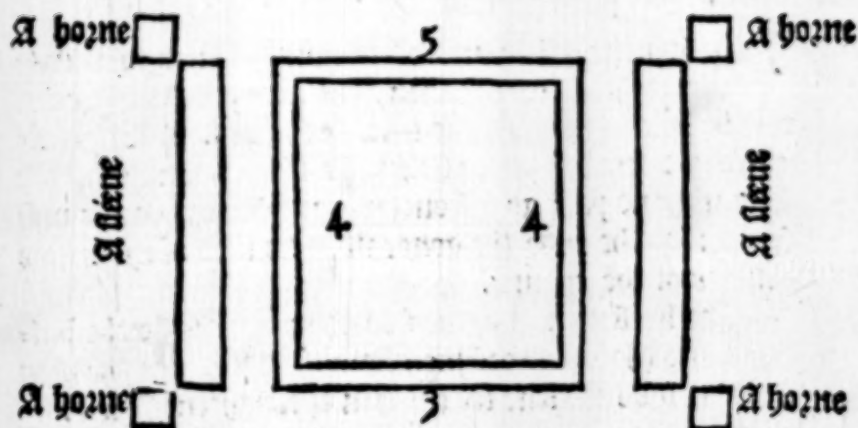


Examples to arme a battaile.

Whereof also aduertising the reader that the greene coulour signifieth the harkabuzers, and the red, the men at armes, and the murreye the light hoysmen.

After at the head of these files, on the one side may be made hoynes of harkabuzers: as is in the sixteenth figure.

The sixteenth figure.

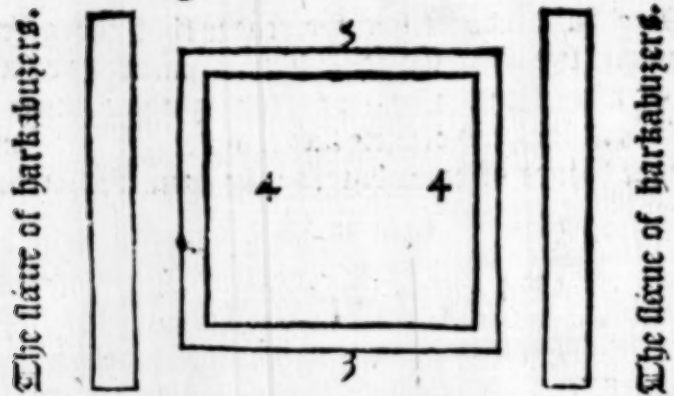


And if by any meanes there should excede harkabuzers, they shalbe set together on one side for a succour to the hoysmen, or where it were most expedient for the defence of themselves, or for the offence of the enemy. Not omitting to tell you, that the files of the harkabuzers may be made more long than is the battaile, as is aboue saide: in such sorte as they should excede beyond the head and taile of the battaile, because they might serue for hoynes: as in the seventeenth figure is to be found.

The seventeenth figure.

Examples to arme a battaile.

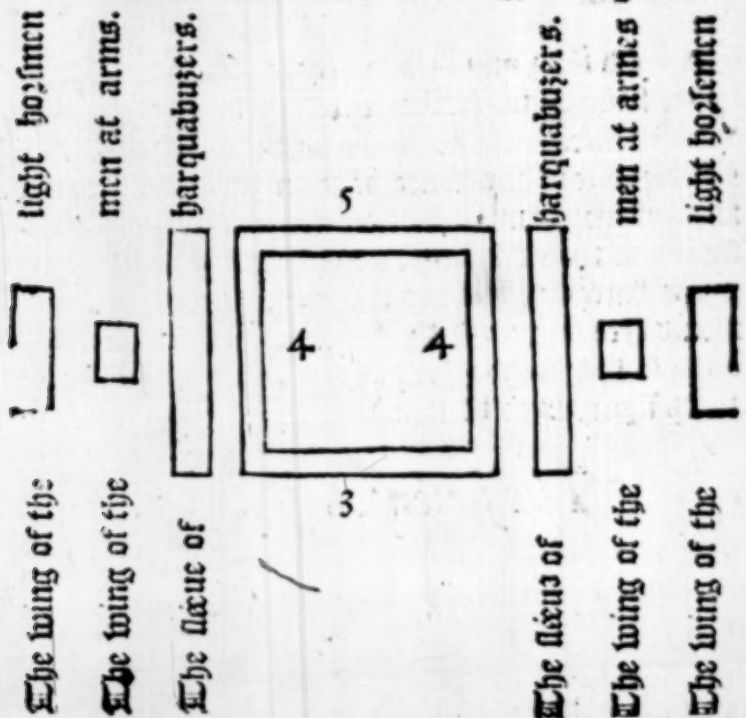
The 17 figure



The which last maner of making fluxes to a battaile is farre better then that aboue saide, after let this be looked for of y^e horsemen, let it be kept for an accustomed order, y^e part of them be set for wings of the battaile, and part go discovering and looking to the passages: to the ende the generall be aduised of the whole doings of the enemy.

The horsemen at armes do make a wing to the battaile, and the light horsemen do make a wing to the men at armes as is scene set forth in the eightene figure.

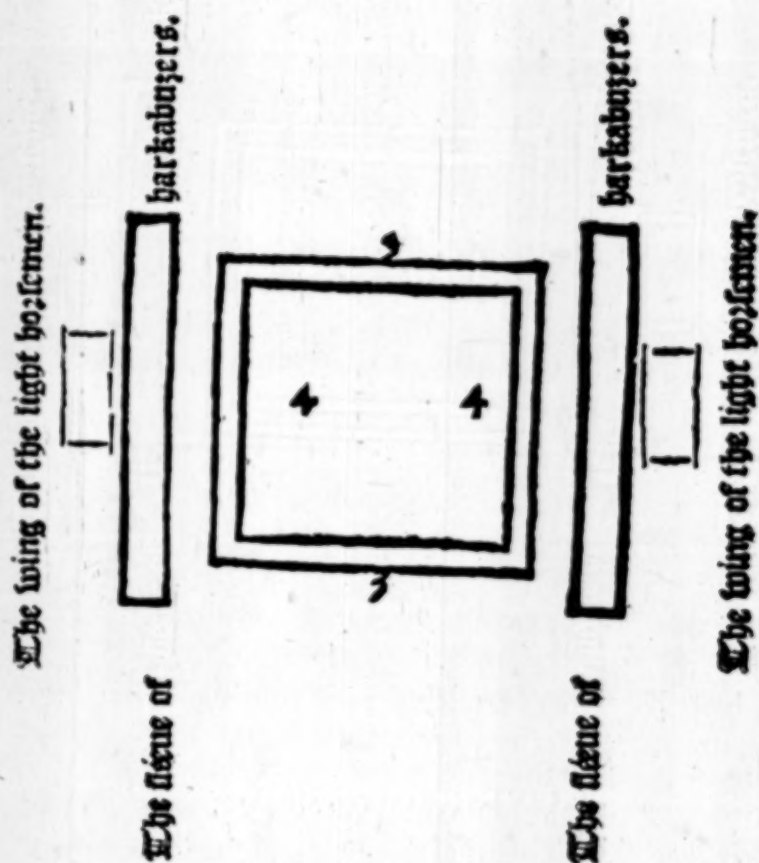
The 18 figure



Ex amples to arme a battaile.

And if by chaunce the men at armes were not,ther
shalbe set for winges a part of the Light Horse
men, and the other parte shall goe in betwix of the
enemie: As is seene expresse and set forth in the nine-
tenth figure.

The ninetenth figure.



A way to march.

A way to march.

Geuing you warning of importtaunce , that the Hozsemen in fight be distaunt as much as is possible from the battaile , least it should be an occasion in retiring from the encmie , to breake the ray of the battaile.

Lastly , putting you in minde that the Hozsemen in their lodging would be as much as is possible couered and warded by the fotelemenne , because when they are to prepare themselves to armes , they are much more slower to be set in order, then are the foteemen.

If a Generall, or Maister of the Campe, or Seargiant Maier , or Captayne , or any other personne that hath charge to cause an Host to march from one place to another , and that hee supposeth to be assaulted by the encmie.

First such an one , shall well consider the situation of the place , whether as hee is to goe with his Host: that is , if there be waies that haue ditches, both of the one side and the other : as are those for the most part of Lombardy : or if he be to goe by playnes , or neare vnto a Hill, or by Hilles, or by Wallyes, that haue hilles on both sides, or by Wooddes, or neare vnto a Woodde, or else neare vnto a Riuer.

Now let vs put the case that they hadde an Host of 6450. Pikes , betwene armed and vnarmed , with the harkibus shotte , and Hozsemenne, and that they would haue it to march by wayes in the plaines that hath Ditches on eyther side.

First one shall goe and consider the breadth of those waies, by the which it is to passe from point to point, and according to that breadth the Host shall march .

And put the case that one part of the way be 15. fote broad, the Host shalbe made to march by 5. in a rancke : Because euery fote man will haue thre fote in breadth, and if you would know how many ranckes of

A way to march.

of footmen there are in 6450. thou shalt deuide 6450. by 5. thereof shall come 1290. ranckes, and so these footmen shall goe by 5. in a rancke, vntill such time as the way bee found moze broad, or moze narrow, and there the way shall be measured againe, and the reckoning shall be made as before, for to see how many footmen goe in a rancke, and how many ranckes there are: Causing part of the harkabus shotte to march before the raie, and part behinde, and another to goe in succour of Horsemen, that goe in viewing of the passages, and the imbushments, with the whole doinges of the enemye. And let another part bee for a Vanguard and Retroguard to the raie, to be able to serue them at neede, and another part goe alwaies at the flankes of the raie, which are passed the ditches on the one and the other side of the way, because the banckes of the ditches shall serue them for a countermeure: when the horsemen of the enemye should come to sette vpon the flankes of the raie. And if there were men at armes, I would that they should march on both sides of the raie, and also of the harkabuzers, that do march by the flankes of the battaile, or raie: And if there were no men at armes, I would that a part of the light horsemen should serue in steede of the men at armes, as is abovesaid, because one part of the light horsemen do serue for Scoutes, both before and behind the raie: but yet in departing from their place, I would that they should faine to goe some other way, then to that place wherunto they purposed to goe. And alwaies when the host marcheth, I would haue abundance of labourers to make places plaine, to cast downe Bridges, to make defences, and other necessarie things that are required in marching.

A way to martch.

And also perfect good guides, that are verie wel practised in the countrie: and if it march by the plaines, let the same order be kept, that is spoken of aboue, except the Pikes, I would that they should march in battaile: And if the hoast did marche neare vnto a hill, it shall keepe the pykes in battaile as much as may be, according to the greatnes of the waye: and sende of the light hoysmen, and of harquabuzers to ouerlooke the hill, to the end the enemie take not the toppe of the hill from them, and in the rest to followe as is said in the first order.

And if it did marche ouer an hill, to keepe the pykes in battaile as much as is possible, & let part of the light hoysmen, and harkabuzers, goe beewing the hil well, to the ende the enemie take not the toppe of the hill from them, and the rest to follow as in the first order.

And if it march thzough a valley betwæne two hilles, there shall be sent light hoysmen and Harkabuzers to either hill to view it verie well, to the end the enemie take not the toppe of those hilles from them, and in the rest to follow as in the first order.

And if it march thzough waddes, to keepe the pikes as much as is possible in battaile, and to send of the light hoysmen and harkabuzers, to view all partes of the Wodde verie diligentlie, and soz the rest to keepe the order after the first way.

And if it march nære vnto a Wodde, some shall goe to view the Wodde verie well, causing one part of the harkabuzers to march by the flankes, of the araie on the Wodde side, and the rest to follow as in the first order.

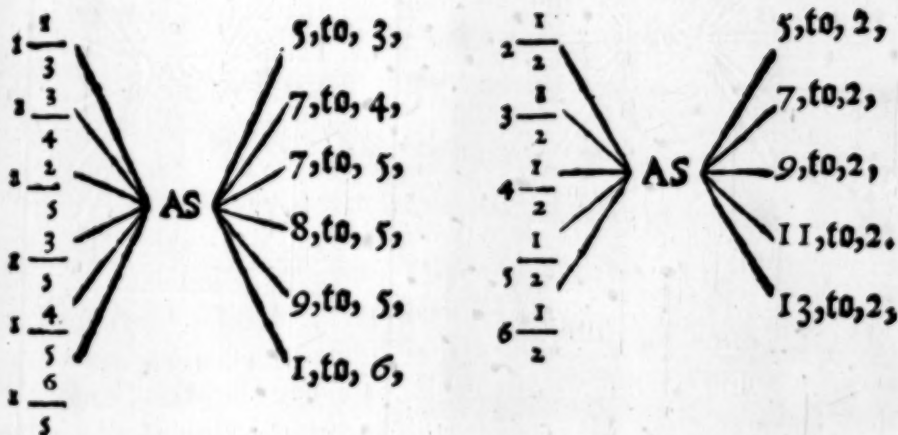
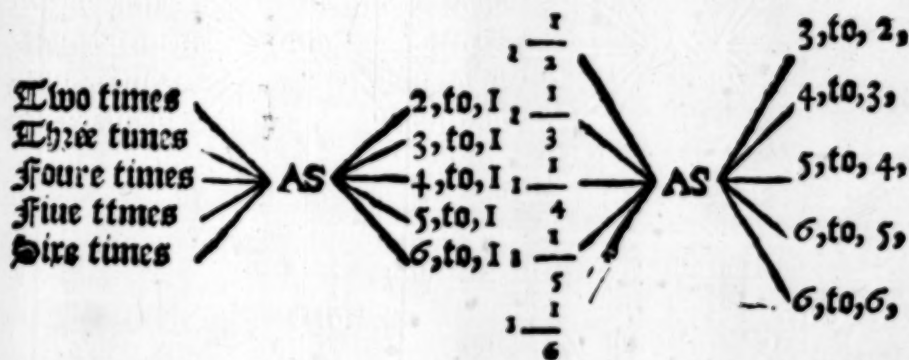
And if it march nære to a riuer, you shall doe as is said, soz the marching nære a wodde, and in the rest to follow, as is appointed in the first way, the baggage shall march on the side where is least suspicion of the enemie, vnder their owne ensigne.

Let,

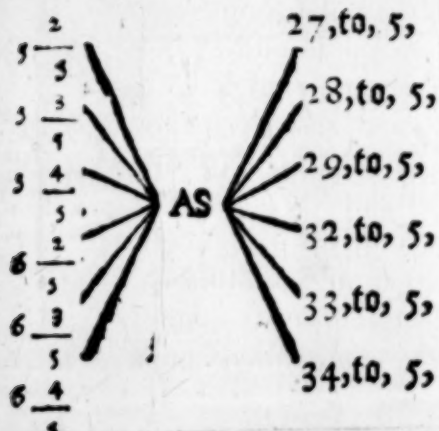
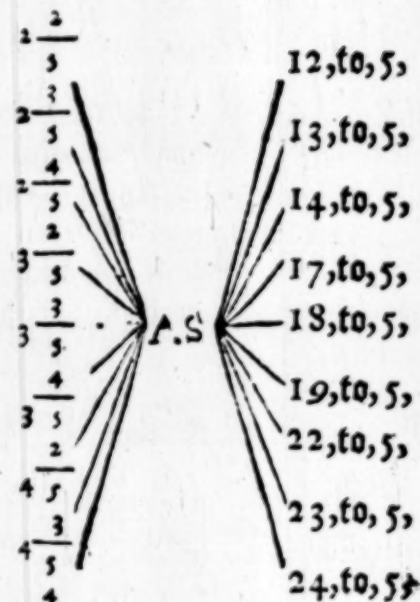
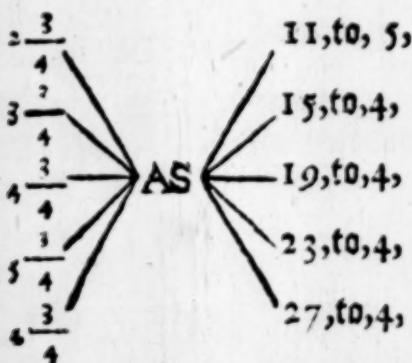
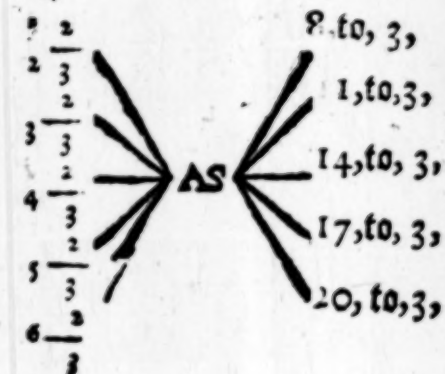
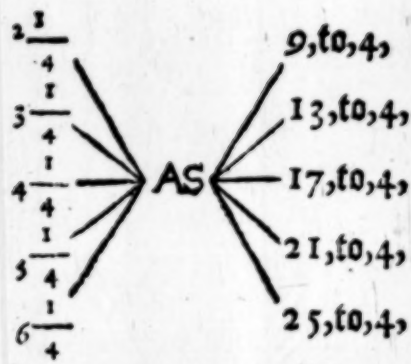
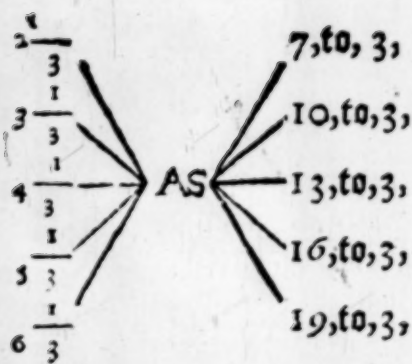
A way to march:

Letting you also to witte, that if it shall goe to anie enterprise vnder the colour of one spie, there ought not to be giuen such credite to the spie, but that it goeth well prouided and warie, because many times spies are double.

If you will make a battaile, that the breadth maye haue what proportion you will to the length, as for example, I woulde haue my battaile two times more large than long of men, three, foure, five, sixe, one and a halfe, one and a thirde, one and a fourth, one & a fift, or in any other proportion, as here vnderneath shalbe declared.



A WAY TO MARCH.



Examples to arme a battaile.

Having now set forth the proportions that may happen in setting of sundry battailes, here following shalbe declared, how to know them, and also how they are to be used in setting the same battailes.

First for to know the proportions, as one would say, I would know what proportion 3. is to 2. comparing the greater which is 3. to the lesser which is 2. 3. the greater shalbe divided by 2. the lesser, whereof cometh

1. and $\frac{1}{2}$ that is, the greater is one and a halfe more in proportion, then is the lesser: And if you compare the lesser which is 2. to 3. the greater, it shalbe saide 1. and

$\frac{1}{2}$ that is, the lesser is one & a halfe lesser in proportion, then is the greater: In like sorte if you would know the proportion of 19. to 4. where the greater is compared to the lesser, 19. the greater, shalbe divided by 4. the lesser, where of both come 4. and $\frac{3}{4}$ thus 19. to 4.

shall haue 4. and three fourthes, in proportion, that is 19. the greater doth containe foure and three fourthes the lesser: And if you compare the lesser which is 4. to the greater, which is 19. also the greater shalbe divided by 4. the lesser, whereof both come 4. and $\frac{3}{4}$ and

it shalbe said that 4. and three fourthes lesser is contained in the greater, that is, that the lesser, is foure and three fourthes lesse then the greater, & by this rule shalbe knownen the proportion of any number to an other: Having already declared the proportion of one number to an other, here underneath shalbe declared how battailes are to be made, in what proportion soeuer one wil.

For example, let vs put the case that one would make a battaile, whose breadth were two and one third, more then the length, of men there shalbe set downe two numbers, that hath the proportion of two
and

Examples to arme a battaile.

and a third, as is aboue declared, which shalbe as 7. to 3 whose preporcion shalbe 2 and $\frac{1}{3}$ that is, two and a third: And because we will haue the breadth greater then the length: the lesser number shalbe taken for the first, and the greater for the second, and the number of the people that are to be set in battaile, let vs put the case they were 6500. men betwene vnarmed Pikers, and Collettes, as hereafter is to be seene.

| | | |
|------------|-------------|------------|
| The first. | The second. | The third. |
| 3 | 7 | 6500 |

After let the second be multiplied by the third, that is 6500. by 7. will make 45500. and 45500. shalbe deuided by three, which is the first, and thereof shal come 15166. and there exceedeth 2. the which shalbes let goe, and no account to be made thereof at all, after ther shalbe taken the square roote of 15166. which shalbe 123. in a rancke, and that which doth exceede aboue the square roote, shalbe let go, as aboue, and for to haue the length of the battaile, the number of the men shal be deuided, that is, 6500. by 123. the breadth of the battaile, thereof shal come 52. for the length of the battaile, and 104. footmenne shal exceede, and 104. footmenne are two times 52. and there exceedeth neuer a footeman, and if there did exceede any, they should be footmenne, which are not to be accompted in the battaile: but yet for the seruice thereof, and two shalbe ioyned in a rancke, which shal make 125. footmenne in a rancke: thus we shall haue our battaile 52. ranckes long at 125. footmen in a rancke broad, which shal haue almost the propoztion of breadth to the length,

as 7. to 3. for in deuiding 125. by 52. it maketh $\frac{2}{3}$, $\frac{1}{2}$

which is a litle moze then 7. deuided by 3. which make 2. and a third: thus we shall say that our battaile is

52.

Examles to arme a battaile.

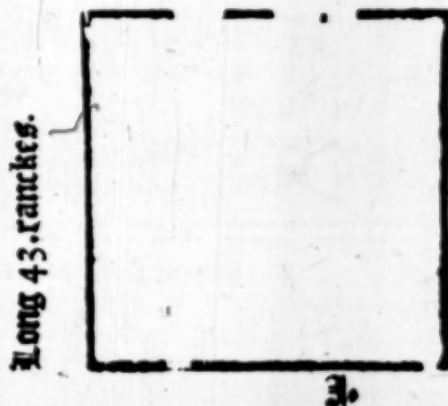
52. ranckes long, and 125. footemen in a rancke broade,
as in a figure shalbe scene.

Another example, if you would make a battaile, that
had the breadth to the leangth, as 3. is to 1. that is, that
the breadth were three times more then the length,
wee will set forth a rule, that is, one for the first, 3. for
the second, and the number of men for the third, as
here underneath is to be scene,

| | | |
|------------|-------------|------------|
| The first, | The second, | The third. |
| 1 | 3 | 5600 |

Now the second shalbe multiplied by the third, and
it will make 16800. and 16800. shalbe deuided by the
first, that is 1. whereof shall come but 16800. because
one doth neither deuide nor multiplie, and of 16800.
we will take the square roote which shalbe 129. and ther
doth exceed 159. whereof there is made no reckoning,
and 5600. which is the number of the people, shalbe deu-
ided by 129. whereof doth come 43. which is the length,
and there doth exceede 53. men, & of the 53. men we will
set one in a rancke, which will make 43. ranckes at
130. footemen in a rancke, and there doth exceede 10.
footemen, as is scene here in this figure.

Beyond 130. men in a rancke.



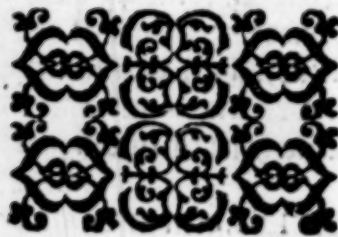
And

Examples to arme a battaile.

And this battaile abovesaid hath his breadth to his length, as 3 . is to 1. and these selfe same rules are to bee made in any sort of battaile, and in any proportion that you will . The which aduices , with many other, entreated of by others, may with the help of God, bring this part of warfare enterprises to a good ende.

FINIS.

Imprinted at London, by
Thomas East : for Iohn Wight,
1588.



his
to
ion